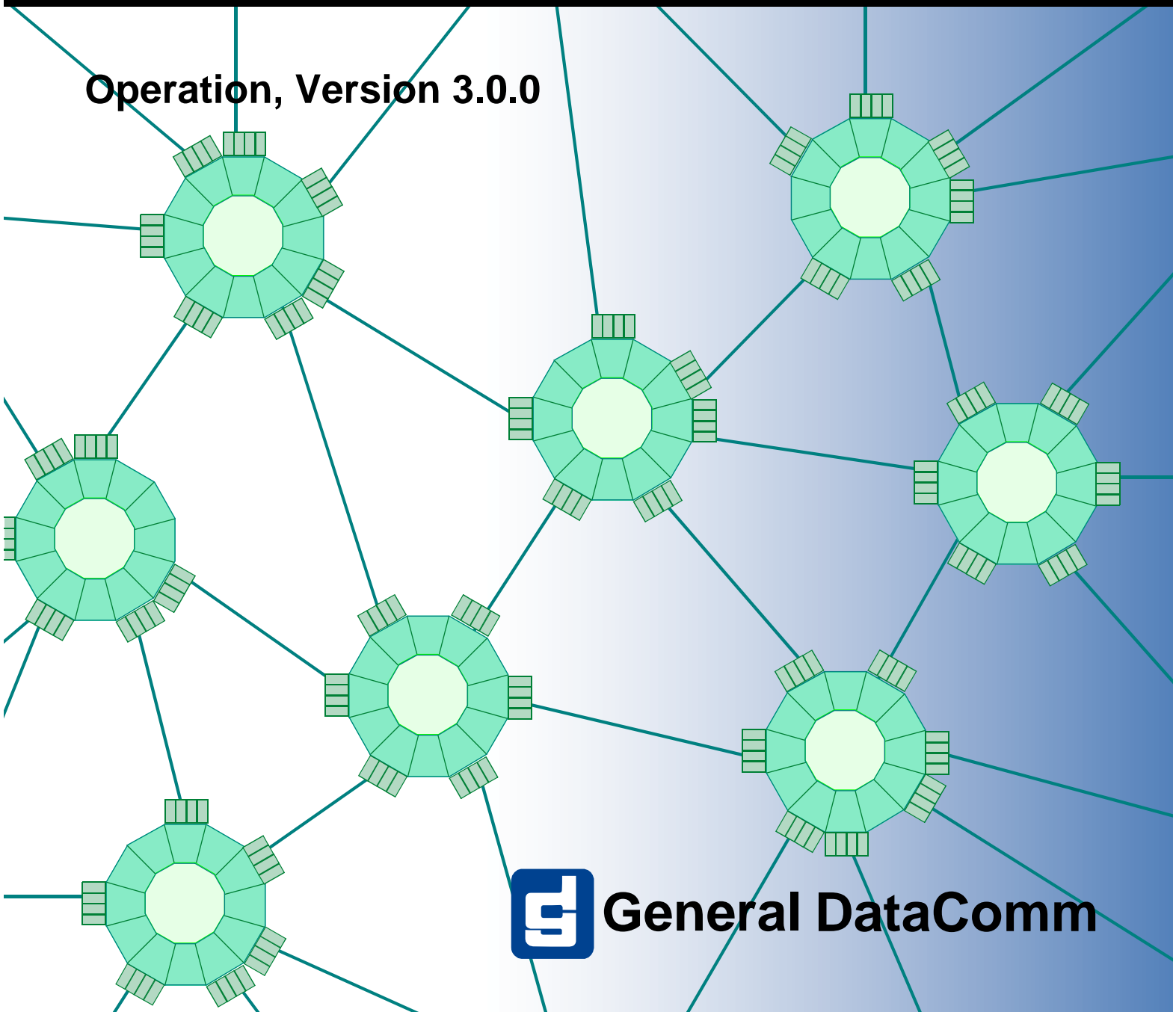# *GDC TEAM 202 for Unix*®

Operation, Version 3.0.0

General DataComm

GDC *TEAM 202 for Unix* [®]

Operation, Version 3.0.0

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If you have comments or suggestions concerning this manual, please contact:

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Revision History

Table 0-1 Revision History

Issue Number	Date	Description of Change
01	Apr. '99	Initial issue

Table of Contents

Preface

Manual Overview

This preface describes the organization of this manual and typographical conventions used throughout the manual. It is arranged as follows:

Organization

This manual describes how to operate the TEAM 202 SUN/HPUX UNIX SNMP Network Manager for controlling the SpectraComm 202 modem. Graphical User Interface windows and their descriptions are presented. The TEAM 202 software is an HP OpenView application that employs the Simple Network Management Protocol (SNMP) to configure and control the operation of the GDC SpectraComm 202 modem. It is assumed that you are familiar with HP OpenView and understand how a modem works.

Each chapter covers an aspect of the TEAM 202 SUN/HPUX UNIX SNMP Network Manager when you use it to work with the 202 modem:

- *Chapter 1 - System Description* describes the Network Manager and its features.

- *Chapter 2 - Operation* shows you how to operate the TEAM 202 modem display.

- *Chapter 3 - Configuration* shows you how to configure the modem and set parameters.

- *Chapter 4 - Maintenance* explains how to maintain the modem.

- *Chapter 5 - Diagnostics* tells you how to test the modem.

The *Index* contains topics on the TEAM 202 with page numbers.

Typographical Conventions

Head_1st Level

Level 1 Headings introduce major topics.

Head_2nd Level

Level 2 Headings introduce subsections of major topics.

Head_3rd Level

Level 3 Headings introduce subsections of secondary topics.

Font Styles

```
Courier font is used to show text output 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.

Note and Important

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.*

The following convention is used when describing how to select options from a menu:

- Press the letter corresponding to the option. This is represented by the following example: "Select **Manage configuration** from the Root Menu." This specifies that you select the option by pressing the letter **M** on the keyboard.

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International Calling Code (+)

When calling from outside the country of origin, use the appropriate International Calling Code where the + symbol is shown.

Chapter 1: System Description

Overview

The TEAM 202 application is actually a collection of integrated applications for the HP OpenView Network Management platform. This application uses the Simple Network Management Protocol (SNMP) to manage the GDC 202 SpectraComm modem. It lets you configure, monitor, and diagnose the 202 modem. You can monitor alarm displays and DTE interface states by a front panel display showing LED indicators as they actually appear on the 202 front panel. Suspected problems can be diagnosed by using local and remote loops (with or without an internally generated test pattern).

Basic Design

The SpectraComm 202 is a SpectraComm-compatible replacement for the DataComm 202T modem. The 202 modem is a two-wire or four-wire private line modem. It has speeds of 0 to 1800 bps, asynchronous data. It can be hard-configured via switches on the modem or it can be network managed via the SCM. The 202 modem does not support management of the remote modem. Having similar features as the DeskTop 202 modem, this device does not support switched network, reverse channel, or local copy.

Up to 15 202-managed master units can be accommodated in a single shelf, and up to 31 in a dual shelf. The 202 modem is fully network-managed by the shelf resident SpectraComm Manager (SCM) and an associated network manager.

Theory of Operation

The TEAM application components are your gateway to the TEAM system which carries out each task while being user-friendly. All of the TEAM controller application interfaces use the HP OpenView APIs (Application Programmer Interfaces) to integrate with HP OpenView Windows and other network management applications. Menus are pulled down from the appropriate OpenView submap or are activated from the front panel button. The TEAM controller Graphic User Interface screens meet HP OpenView premier partner requirements.

SpectraComm Manager Card and Managed Units

The SpectraComm 202-managed units work with the GDC SpectraComm Manager (SCM) card to give you comprehensive network management using the Simple Network Management Protocol (SNMP). The SCM acts as the SNMP agent where TEAM management applications communicate with these 202-managed units and other compatible equipment.

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 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 managed devices.

Accessing the TEAM 202

The applications that make up the TEAM 202 manager are grouped on menus under the headings `Performance`, `Configuration`, `Fault`, and `Misc` (Miscellaneous). Menus for the applications are available in two ways:

• From the menu bar of the HPOV Map window when an 202-managed unit is selected in the window, or

• From the `Select` button on the 202 front panel display.

The 202 front panel displays current status information on the 202 managed unit by displaying the states of the LED indicators on the front panel of the unit. The managed unit has `Select` button menus where you can access all other functions of the TEAM 202 manager. You can select the front panel from the `Performance` menu in the HPOV Map window menu bar. You can also launch the front panel display from that window by double-clicking on the shelf icon of the unit or device you need to work with.

The following TEAM 202 applications appear on both the Map window and `Select` button menus:

• `Performance`:

Front Panel - furnishes a graphical display of a SpectraComm 202 unit.

Alarms – furnishes detailed information about alarm state changes.

• `Configuration`:

Configure – enables you to configure a selected SpectraComm 202 unit.

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

• `Fault`:

Diagnose – lets you run diagnostic tests on a selected SpectraComm 202 unit.

• `Misc`:

Information – displays revision level information on the TEAM 202 software.

The `Misc` menu in the Map window menu bar offers you two selections that do 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.

`Note Pad` – opens a shell tool on the workstation running the TEAM software. You can use the shell tool to run a text editor, mail tool, or any other software that resides on the workstation. The note pad application is useful for keeping system records.

Chapter 2: **Operations**

Overview

The TEAM 202 operates by giving you easy access to its fundamental tools when you run the application. You can see how it constantly gives you feedback, allowing you freedom to configure and maintain the application and advising you of immediate testing results.

Accessing the 202 Application

The TEAM 202 controller application consists of a group of applications, each devoted to a specific aspect of controlling or monitoring 202 units. As mentioned in *Chapter 1*, you can access the TEAM 202 applications by:

- the map window menu bar, or

- the front panel window `Select` button menus.

This chapter describes both ways.

Performance

There are two performance applications:

- `Alarms`, giving you alarm information in a read-only window.

- `Front Panel`, displaying the front panel of an unit.

Configuration

`Configuration` has two parts: `Configure` and `Maintenance`. Each supports read/write windows so that you can review and change unit operating parameters. This chapter describes how to access `Configure` and `Maintenance`. Separate chapters are devoted to showing you how these applications work.

Fault

The `Fault` menu lets you access `Diagnose`. With the `Diagnose` application you can command the test functions of the units and see the test results. This chapter describes how to access the `Diagnose` application. A later chapter shows you how to use `Diagnose`.

Misc

Three items appear under the menu `Misc` (miscellaneous): `Information`, `Front Panel Poll Rate`, and `Note Pad`. Only `Information` appears on the `Select` button menu of the front panel display.

Map Window Menu Bar Access

The table below illustrates how the TEAM 202 application functions are arranged on the menu bar at the top of the HPOV Map window and shows only the menu selections for the TEAM 202 applications. The map window menus include selections besides those that apply to TEAM 202 since the window also lets you access other applications. You must select the unit you intend to work with before you open the intended menu. Select the unit by clicking the mouse once on its icon in the shelf slot.

Menu Bar	Menu Selections
Performance	
	Front Panel...
	Alarms...
Configuration	
	Configure...
	Maintenance...
Fault	
	Diagnose...
Misc	
	Information...
	Front Panel Poll Rate...
	Note Pad...

The performance menu (front panel selection) opens the front panel display window. The `Select` button menus in the front panel display window include the selections that appear above, with the exceptions of `Front Panel` under `Performance`, `Front Panel Poll Rate`, and `Note Pad` under `Misc`.

Front Panel

The front panel status application presents an image of the face plate of the card. It starts from the TEAM Universe when you choose a particular shelf.

1. Double-click on the shelf slot icon to display the element submap.

2. Select the card icon.

3. Select the `Performance->Front Panel` from the main menu or double-click on the card icon.

The image contains LED animated images reflecting actual card status. You have a snapshot of the real-time events that the unit is undergoing as well as a convenient launching point for all the major applications pertaining to the product.

See for an example of a front panel.
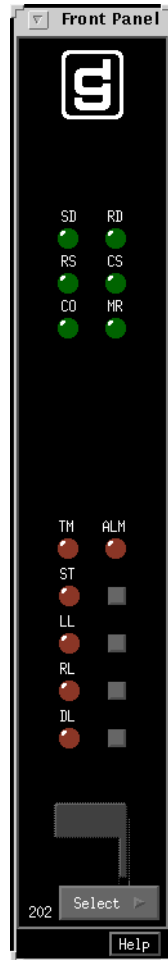
Figure 2-1   202 Front Panel

Front Panel LEDs

The LEDs shown in a front panel display reflect the states of the actual indicators on the physical unit:

LED	LED Indications
SD	(Green) Send Data. Lights when a space (0) is transmitted.
RD	(Green) Receive Data. Lights when a space (0) is received.
RS	(Green) Request-to-Send. Lights when the RTS control lead is on, indicating that the DTE is ready to send data. Also lights during a channel self-test or when forced ON.

CS   (Green) Clear-to-Send. Lights when the CTS control lead is on. Also lights during a self-test or when forced ON.

MR   (Green) Modem Ready. Lights when control lead DSR is ON. Remains OFF during a self-test and during a digital loopback.

TM   (Red) Test Mode. Lights during a diagnostic test (local loop, remote digital loop, and digital loop).

ALM   Alarm. Lights for an alarm. This LED is the same color as the shelf slot icon.

ST   (Red) Self-Test. On when Self Test is activated via ST pushbutton on modem front panel.

LL   (Red) Local Loopback. On when Local Loopback is activated via LL pushbutton on modem front panel.

RL   (Red) Remote Loopback. On when Remote Loopback is activated via RL pushbutton on modem front panel.

DL   (Red) Digital Loopback. On when Digital Loopback is activated via DL pushbutton on modem front panel.

CO   (Green) Carrier . On when carrier energy is received over the channel when DCD is On.

Buttons

Help   Displays the on-line manual.

Select

        Performance-->Alarm Detail...

        Configuration-->Configure...
                      -->Maintenance...

        Fault-->Diagnostics

Two poll selections in the Select button menu determine (for the current session) when the application is to collect new information from the unit for updating the front panel window:

Demand Poll - This gives you an immediate display.

Auto Poll - You can either select updates at 15, 30, or 60-second intervals or disable automatic polling. If you select Disable, the front panel window displays a static snapshot of the LED states as of their last poll at the time the window was launched or as of a subsequent demand poll.

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.

Misc-->Information

Exit - Dismisses the front panel window when you click on it.

Status Message Area

The status message area at the bottom of the screen displays messages describing application activity and unit interaction. Possible examples are time, not responding, and the like.

GDC Logo

The GDC logo on the front panel is actually a push-button which spawns off an information screen containing TEAM 202 controller version information.

Performance Functions

Alarms

You can launch the TEAM 202 `Alarms` application from the performance menu from the HPOV Map window menu bar or by the front panel display `Select` button menu. The application displays the read-only `Alarm Detail` windows for the selected unit(s) for the TEAM 202. See Figure 2-2, where the alarm detail window for the 202 is shown. The TEAM 202 application gets its alarm indications from the unit in two ways:

•   Receiving traps sent automatically in response to alarm conditions at the unit or,

•   Initially, polling the unit for alarm conditions.
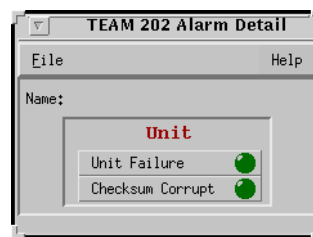
Figure 2-2   Alarm Detail Window for the 202

The alarm detail window (Table 2-1) displays `Unit` alarms.

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

Table 2-1   Unit Alarms

Unit Alarms (202)	
`Unit Failure`	Unit has failed its power on self-test. Major Alarm: on=orange, off=dark green.
`Checksum Corrupt`	Indicates that the non-volatile memory, which stores the configuration of the unit, has become corrupted. Major Alarm: on=orange, off=dark green.

Selectable Alarm Detail Window Items

The `Alarm Detail` window has selections `File` and `Help` in its menu bar, with the `File` menu containing only one choice, `Exit`, which you click to dismiss the window. `Help` displays the on-line manual.

Configuration

The SpectraComm 202 is configurable by hardware switches and jumpers, or by network management. One of the hardware switches allows you to select whether the unit is controlled by hardware switches or by the network manager. If you set the unit for hard options, the network manager can not read status, configure, or run diagnostics on the card. Refer to *Chapter 3*, *Configuration*.

Maintenance

You can launch the TEAM 202 Maintenance application from the HPOV Map Configuration Menu or from the front panel menu.

The application displays one read/write window where you can control some aspects of operation that fall outside the scope of the `Configure` function. The TEAM 202 maintenance application is fully described in *Chapter 4, Maintenance*.

Diagnostics

You can launch the TEAM 202 `Diagnostics` application from the Shelf Map Fault Menu or from the front panel display select button menu. The application displays one read/write window where you can control various test functions of a particular 202 unit. The TEAM 202 diagnostics routine is fully described in *Chapter 5, Diagnostics*.

Miscellaneous Functions

Information

You can launch the TEAM 202 `Information` window by clicking on the GDC logo on a front panel display or from the `Misc` shelf submap menu.

Information displays a single read-only window that contains the name of the application, software revision level data, and copyright information. The `File` menu in the menu bar contains only the selection `Exit`, so that you can dismiss the window.

Front Panel Poll Rate

You can open the `Front Panel Poll Rate` window from the shelf submap `Misc Menu`. The setting you select in this window determines the initial polling rate for front panel displays each time they are opened.

The rate selection is a global function and establishes the initial polling rate for all front panel displays linked to a TEAM CORE application, regardless of the application you access it from. There are four selections, each accompanied by a check-box:

>   Slow (60 seconds)
>
>   Normal (30 seconds)
>
>   Fast (15 seconds)
>
>   Demand Poll Only (Disable)

The `File` menu in the menu bar offers two options: `Save to File` and `Exit`.

To set the desired polling rate, first click on the appropriate check-box and then select `Save to File` from the `File` menu. Saving to file means that you are setting aside polling instructions or data for future us. Precise polling frequency depends on either a `Slow`, `Normal`, or `Fast` setting. The higher the setting, the more communication and processor capacity is required for maintaining the display.

The polling rate for an individual front panel display can be changed for the duration of a session by `Auto Poll` in the `Select` button menu. Changes you make with that menu selection are not retained when the display is closed. To dismiss the window, select `Exit` from the `File` menu.

Note Pad

You can launch the `Note Pad` application from the shelf submap `Misc Menu`. The application opens a shell tool on the workstation running the TEAM software. Use the shell tool to run a text editor, mail tool, or any other software residing in the workstation. The `Note Pad` application is handy for keeping system records.

Chapter 3: Configuration

Overview

The TEAM 202 `Configuration` application allows you to set most of the options in an 202 unit through a convenient group of configuration windows. You can start the TEAM 202 Configuration application in two ways:

- Choose a 202 modem symbol on the shelf submap in `OpenView`, then select the `Configure` option from the `Configuration` menu.

- Click on the `Select` button of the Front Panel display, then click on `Configuration` and select `Configure` from the resulting menu.

Templates

You can store configuration settings as templates on the workstation running the TEAM 202 application. A template stores a configuration for the unit options, and you can store as many templates as you need.

To load configuration settings from a template into the 202, you must do the following:

1. Select `Load Template` from the `File` menu and select the template from the resulting dialog window. The application retrieves the configuration settings of the selected template.

2. Select `Save to Unit` from the `File` menu. The application sets the template configuration settings as the current operating configuration for the unit.

Configuration Procedure

The following steps describe how to use the configuration application, and illustrate the functions of the `Main Configuration` window menus.

1. Access the `Main Configuration` window, either from the submap or from the front panel display. The application reads the current main configuration from the unit when you open the main window.

   You can base your configuration changes on either the current configuration or on a stored configuration template. In either case, the unit continues to operate using its unchanged current configuration.

   The `Refresh` selection on the main window `File` menu causes the application to read the current configuration from the unit. All changes to all configuration windows, that have not previously been saved to the unit or to a template, are lost when you select `Refresh`.

2. To edit the current configuration of the unit, go directly to the `Navigate` menu as described in Item 3 below.

   To edit a template, select `Load Template` from the `File` menu and select a template from the resulting list.

---

3. Click on the `Navigate` button to display a menu of the configuration windows, and click on the one where you want to make changes.

4. Make changes as needed in the configuration window.

    When you click the mouse on the entry field for a configuration item, a window opens containing all the values that are permitted for that configuration item. Hold down the mouse button until the highlight is on the value you intend to configure, then release the button. The newly selected value appears in the entry field for the configuration item.

    When you change the value or setting of an option, the application displays the option name and the new value in white, rather than in black, type. These values remain white until you either save the changes to the unit or to a template by the `Main` window `File` menu, or restore the option to its last stored value or setting.

    You can discard changes to a configuration window and return all its fields to their stored values in two ways:

    •   Click on the `Reset` button to discard changes while keeping the window open, or

    •   Click on the `Cancel` button to discard changes and close the window.

    You can close a configuration window without losing changes by clicking on either the `OK` button or the push-pin glyph, located in the upper left corner of the window.

    You can keep multiple configuration windows open on-screen and move between them by clicking the mouse on the one where you want to operate. The main configuration window remains on-screen during the configuration process.

5. After you have accessed all the configuration windows that you need to and made all of your changes, click on the `File` menu button of the `Main Configuration` window.

    From that menu you can select `Save to Unit` to save the new configuration in the unit, or select `Save to Template` to save it as a template at the workstation. As soon as you choose `Save to Unit`, the modified configuration now becomes the current configuration set-up for the 202.

    When you select `Save to Template`, a window appears displaying a list of existing templates and a field for entering a new template name. You can pick an existing template to be overwritten with the new configuration, or enter a name to produce a new template. A stored template is available to be loaded by the application and then saved, with or without further modification, to any unit of the same type.

Main Configuration Window

The `Main Configuration` window (<u>Figure 3-1</u>) has two pull-down menus, `File` and `Navigate`. These allow you to carry out the actual process of configuring the selected unit. From the `Navigate` menu, you select the individual configuration windows where you make changes. The `File` menu commands the storage and retrieval of configuration settings.

The main configuration window title bar displays the application name, `TEAM 202 Configuration`. Items in the main body of the window point out the selected unit and furnish data about its operations. Below, is the `TEAM 202 Configuration` main window (<u>Figure 3-1</u>) which is launched from the HPOV Shelf Map Configuration Menu. The application is made up of one main window and a set of transient windows giving you unit optioning, described below.

Figure 3-1   Main Configuration Window

Specifically, this main window has four areas:

• Title bar, providing application name

• Menu bar, providing file operations, navigation through subordinate screens, and basic help

• Main body, providing administrative read-only fields

• Status messages, footer area, providing application data on activity and unit interaction

Details (Figure 3-1) follow.

Menu Buttons	Menu Selections	Description	Further Selections
`File`			
	`Refresh`	All options are read from the unit and outstanding edits are lost.	
	`Save to Unit`	All outstanding edits are sent to the unit.	
	`Load Template`	Allows you to select an existing 202 template to be applied as edits to the current application. Your next `File- ->Save to Unit` brings about the template changes.	dialog window
	`Save to Template`	Configuration data is saved as a specific template.	dialog window
	`Compare to Template`	You can select an existing 202 template to be compared with the screen display.	dialog window
	`Exit`	Terminates application with outstanding edits discarded first.*	

Menu Buttons	Menu Selections	Description	Further Selections

|			
*Note:	If the configuration application is exited while pending edits exist on the configuration screens, you are prompted that `Pending edits exist, do you want to save or exit without saving the changes?`		

Navigate		
	Unit Options...	Displays the TEAM 202 `Unit Configuration Option` window.

Help	Displays `Help` on-line manual.

Menu Buttons	Menu Selections	Description
Fields (Read-Only)		
	Name	This is the shelf name, identified by slot number and symbol label.
	Slot State	Gives you the state of the shelf slot, either as `Active` or `Inactive`.
	Operational Status	Shows you the state of the current unit, either as `Up` or `Down`.
	Serial Number	Presents the serial number of the unit.
	Firmware Revision	Shows latest firmware revision on the unit.
	Mib Version	Shows MIB version of the unit.
	2W/4W Operation	Shows the modem is hardware strapped for 2- or 4-wire operation. 2W (two-wire mode) is half-duplex, either transmitting or receiving. `RL` cannot be performed in two-wire mode. 4W (four-wire mode) can be full-duplex, both transmitting and receiving simultaneously.

Unit Options

The TEAM 202 `Unit Options` window (Figure 3-2) lets you define unit interface characteristics for the unit and is presented when you choose `Navigate-->Unit Options` on the 202 configuration main window. See Figure 3-2. A description of each item is found below showing the defaults in bold print.
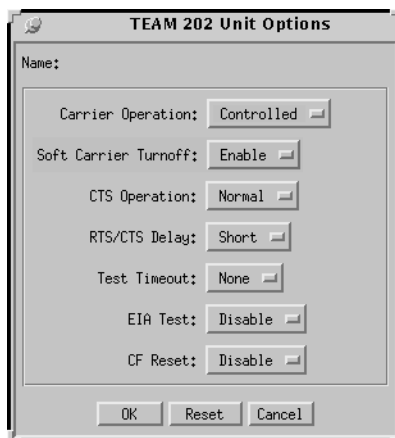
Figure 3-2   TEAM 202 Unit Options Window

Carrier Operation

Determines if the transmit carrier is controlled by RTS or not. In controlled carrier mode, the transmitter sends a carrier signal only when RTS is on. This is needed to control the direction of transmission in half-duplex operation over two-wire facilities. The carrier signal is either 1200 Hz to send a space or 2200 Hz to send a mark. Turning RTS on turns the transmitter on; after the RTS/CTS delay is set, CTS turns on. Turning RTS off turns off the transmitter within 1 ms. If the Soft Carrier Turnoff option is enabled, 900 Hz is transmitted for a fixed period before the transmitter is turned off.

Controlled Carrier

When Controlled Carrier is selected, the anti-streaming timer is automatically implemented. This timer is designed to prevent a faulty terminal from keeping carrier on a multi-drop line inadvertently and to hinder other terminals from transmitting. If RTS is turned on for more than 30 ± 1 seconds at a time, the modem turns off CTS to the terminal and turns off the transmitter. This prevents any transmission until RTS turns off and on again.

Continuous Carrier

In Continuous Carrier (or constant carrier) mode the transmitter always sends a carrier signal and is used for full-duplex operation over four-wire facilities.

Soft Carrier Turnoff

This option provides for the generation of a 900-Hz tone after RTS is turned off and allows the receive data lead at the remote modem to remain at a mark when the local RTS is turned off. The soft carrier time is 8 or 30 ms, depending on the setting of the RTS/CTS time.

Enable

Enable allows soft carrier turnoff and it used to force RXD to marks on the remote modem before DCD turns off.

Disable

Disable does not send the 900-Hz tone.

CTS Operation

Determines whether CTS follows RTS or is always on.

Normal

`Normal` turns on CTS after a fixed delay when RTS turns on. This is also called dummy Controlled carrier operation since the RTS/CTS delay is set to correspond to the carrier detection time of the remote modem. In two-wire mode, `Normal` is always chosen since transmission is half-duplex.

Forced On

`Forced On` means that the transmitter and CTS are always on, regardless whether RTS is on or off.

RTS/CTS Delay

This is the delay between RTS turning on and CTS being turned on, when CTS operation is set to `Normal`. The delay must be set to be compatible with the squelch and carrier-detect acquisition timing of the remote modem and for soft carrier turnoff options in two-wire applications.

Short, Long

The `Short` or `Long` delay time is set to 0, 8, 30, or 180 ms according to certain parameters (Table 3-1):

Table 3-1   RTS/CTS delay times

Application	Short Delay	Long Delay
2-wire controlled carrier	30 ms	180 ms
4-wire controlled carrier	8 ms	30 ms
4-wire continuous carrier	0 ms	8 ms

Test Timeout

Controls the automatic timeout for diagnostic tests.

Disable

`Disable` means no timeout, but the front panel `RL` always ends after ten minutes, regardless of this option.

Enable

`Enable` means that the tests terminate after ten minutes, except if a test is initiated by way of EIA leads.

EIA Test

Determines whether the EIA 232 control leads `LL` (Pin 18) and `RL` (Pin 21) control the `LL` and `RL` loopbacks, respectively.

Enable

`Enable` signifies that the DTE can turn on `LL` or `RL` loopbacks by turning on the `LL` and `RL` leads.

Disable

`Disable` signifies that the DTE can not activate the `LL` and `RL` loopbacks.

CF Reset

Determines whether the DTE can reset the carrier detector output, CF (RLSD or DCD).

Enable

`Enable` is functioning when the DTE activates CFRES on Pin 25, `CF` from the modem turns off and stays off, until received-carrier detection turns off and turns on again; it is used by the master modem in a four-wire multipoint system for rapid acquisition of incoming signals from different remote transmitters. `Disable` is functioning if the DTE can not reset CF.

Disable

You select `Disable` if the DTE does not support CFRES on Pin 25.

Note   *The following status items are not reported by the TEAM 202 network management.*

Equalizer

This is a compromise delay equalizer for the receive path.

- `In` - Equalizer is inserted in the receive signal path, helping to compensate for the amplitude and phase distortion of long lines.

- `Out` - Equalizer is not used.

Transmit Output Level

This device controls the level of the transmitted signal, 0 to -15 dBm, such that the level may be set anywhere from 0 to 15 dBm in 1-dB steps.

Configuration

You can configure the unit, either by hardware (DIP switches) or by software (network manager).

- Hard - The card is configured by hardware DIP switches and jumpers only and does not respond to network manager messages for status, configuration, or diagnostics.

- Soft - The card is configured by the network manager and responds to network manager messages for status, configuration, and diagnostics.

Note   *The 2W/4W operation, equalizer in/out, and transmit output level options are always set by hardware jumpers only, even though the modem is set for soft mode.*

Chapter 4: Maintenance

Overview

The TEAM 202 `Maintenance` application governs a group of functions controlling the 202 modem.

You can start the TEAM 202 `Maintenance` application by either of two methods:

• Select a 202 modem symbol on the shelf submap in `OpenView`, then select the `Maintenance` option from the `Configuration` menu, or

• Click on the `Select` button of the Front Panel display, then click on `Configuration` and select `Maintenance` from the resulting menu.

Maintenance Window Buttons

The `TEAM 202 Maintenance` window (Figure 4-1) has two action buttons, covered in Table 4-1.

Figure 4-1   Maintenance Window

Menu Buttons	Menu Selections	Description
`File`		
	`Exit`	Terminates application while first discarding outstanding edits.

Table 4-1   Maintenance Action Buttons

Menu	
Action Buttons	**Description**
Reset Unit	Starts a board reset and disrupts data transfer. Also, gives a warning message.
Set Factory Defaults	Causes all options in the unit to return to their factory default settings. When you click on this button, the application displays a warning: `Resetting to factory defaults will disrupt communications to the unit. Do you want to continue?` Continue or Cancel.
Help	Displays `Help` on-line manual.

Overview

The `Diagnose` menu accesses the TEAM 202 diagnostic screen, giving you the command and the display functions of the results for all tests done on the modem with the TEAM application. The diagnostics window shows the results of the most recent test until you begin another one. A 202 diagnostic is launched from the `Shelf Map Fault` menu. The application is made up of one main window and a transient window with testing history, called the `Diagnostics History` screen. Accessible from the main `Diagnostics` window, this screen displays the outcomes of all tests done during the current session.

Diagnostics Window

The `Diagnostics` window is broken down into different areas. The menu has file operations (`File`), navigation through subordinate screens (`Navigate`), and basic help (`Help`). File menu option `Exit` dismisses the application. The only selection in the Navigate menu is `History`, which causes the application to display the `Diagnostics History` window. This item holds the results of all tests for the current session.

Diagnostic test fields, test control buttons, graphic displays (test diagrams), test results, and status messages make up the main part of the window. Status reports or messages give the viewer up-to-date data on the application (Figure 5-1). A summary follows the figure below.
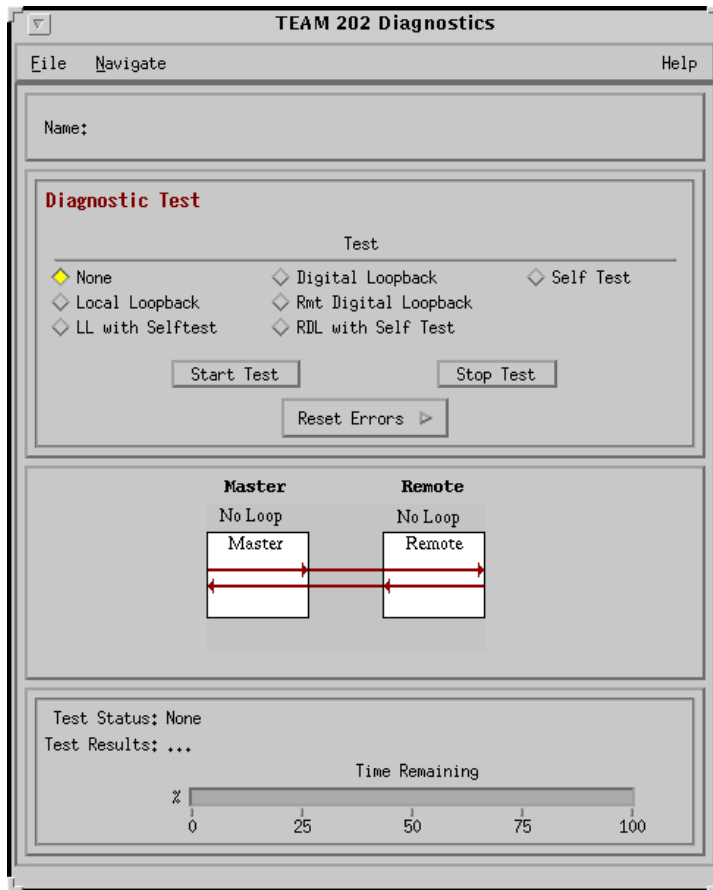
Figure 5-1   TEAM 202 Diagnostics Window

Menu Buttons	Menu Selections	Description
File		
	Exit	Terminates application.

Menu Buttons	Menu Selections	Description
Navigate		
	History...	Displays the Diagnostics History window

Menu Buttons	Menu Selections	Description
Help	Displays the Help on-line manual.	

Next, there is a table describing the features of the diagnostics window.

Menu Buttons	Menu Selections	Description
Fields		
	Name	This is the shelf name, identified by slot number and symbol label (read-only).
	Tests	
	None	No master-remote test selected.
	Local Loopback	Local loopback tests the modem, terminal, and terminal-to-modem connection. During this test, the transmitter of the modem and receiver are disconnected from the line and connected together. Any transmitted data is looped back to the terminal. Local loopback can be initiated from the front panel LL push-button, from the DTE LL control lead (if enabled), or from the network manager. The test automatically ends after a time-out, if the test time-out option was selected.
	Local Loopback with Self Test	The SpectraComm 202 can insert a 63-bit test pattern generator into the transmit data path and a test pattern checker into the receive data path while in local loop.
	Digital Loop	Digital Loopback (4-wire circuits only) tests the local and remote modems, the remote terminal, and the communications line. During this test, the transmitter of the modem and receiver are disconnected from the terminal interface and connected together. Any received data from the remote modem is looped back and re-transmitted to the remote modem. Digital loopback can be initiated from the front panel DL push-button, or from the network manager. The test automatically ends after a time-out, if the test time-out option was selected.
	Remote Digital Loopback	This corresponds to RDL (Remote Digital Loopback) on the DeskTop 202 modem. It is a proprietary loopback (not compatible with the V.54 loop-up/loop-down code) that is valid only in 4-wire, continuous carrier mode, and is compatible only with the DeskTop 202 and SpectraComm 202 modems. It is activated by the local modem which is sending an abnormal sequence of the 900-Hz tones. The local modem attempts the handshake for a maximum of four seconds. If it fails to complete the handshake in this time, it will revert to normal operation. During the handshake, all the EIA leads and corresponding LEDs are off. Once the handshake is finished, the TM LED turns on the local modem. The remote modem implements a DL and loops data back to the local modem. A 10 minute, +/- 10 seconds, receive RL time-out is implemented at the remote modem. If this time-out expires, or any test mode is selected (either by way of the front panel or DTE control leads or network management), the remote modem terminates the DL loopback. This would happen after signaling the local modem by a 0.5-second loss-of-carrier. The local modem terminates RL by using the same loss-of-carrier sequence.
	Remote Digital Loopback with Self-Test	Activates the test pattern generator and checker in the master unit and places the remote in digital loopback.
	Self Test	The SpectraComm 202 can insert a 63-bit test pattern generator into the transmit data path and a test pattern checker into the receive data path.

Test Buttons	Description
Start Test	Pressing this button starts the test selected in the menus.
Stop Test	Pressing the button sends commands to stop all tests running in the unit.
Reset Bit Errors	This button enables you to reset the bit errors.
Graphical Display Area	This area contains a graphical representation of the selected 202 modem and its interface to the shelf and network. Arrows show the current data paths and are changed to show the loopback paths selected for each test.

Test Results	Description
Test Status	Displays test currently running or idle.
Test Results	Displays the bit error for any self-test or OK for a loop.
Time Remaining	Displays time left to test in a bar chart form.
Status Message Area	Messages in the status message area advise you about application activity and unit interaction. Examples might be: waiting for response form unit, initialization messages, and communication errors.

Note   *The TEAM 202 application polls the modem every 35 seconds while the diagnostics window is open. To reduce unnecessary LAN traffic, the diagnostics window should be closed when it is not used.*

Test Instructions

Do the following steps to carry out a test:

1.   Select the test to be done by clicking on the check box to the left of its name.

2.   Click on the Start Test button. The data path display panel exhibits the path for the test you have chosen. The Test Status field changes from Idle to the test name.

If you are running a Self Test, the Reset Bit Errors button is available while the test runs. The reset button returns the error count to zero. The Stop Test button is a handy tool during any test. While running a test, the application displays the results in the Test Results window area.

202 Diagnostics History

You see the diagnostics history when you choose Navigate->History on the 202 diagnostics main window. Results of diagnostics tests for a current session are shown (Figure 5-2). Following the figure a table explains each attribute.
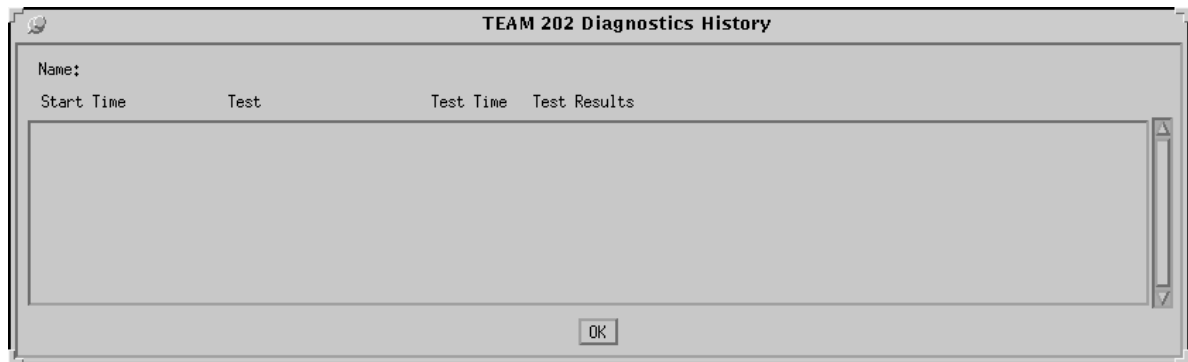
Figure 5-2   TEAM 202 Diagnostics History Window

Fields (Read-Only)	**Description**
Name	Shelf name
Start Time	Date and time the test started
Test	The specific test done
Test Time	Total time elapsed since the test started
Test Results	Displays the bit errors for any self test or OK for any Loopback.
Note: The history of tests, performed during a single session of diagnostics, are captured in a scroll box. Information is lost when the diagnostic application is exited.	

Action Buttons	
OK	Dismisses the screen.

Information

You can launch the TEAM 202 Information window from the Misc shelf submap menu. Information displays one read-only window with the application name, software revision level, and copyright date. File menu option Exit dismisses this window.

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