TEAM® Core Software Version 4.2.0

Operation Manual for HPOV on Solaris/HPUX

General DataComm

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Revision History

Issue Number	Date	Document Revision History
1	January 2002	Initial Release of Version 4.2.0

Related Publications

Related Publications	Part Number
SpectraComm Manager Card Installation & Operation Manual	048R303-REV
TEAM Core Release Notes	058R957-VREF
Installation and Operation Manual for each individual network element	Refer to www.gdc.com for specific GDC publication titles and part numbers.
TEAM Operation Manual(s) for each TEAM-managed network element	

–REV designates the most current hardware revision (**–000**, **–000**, etc.).
–VREF designates the latest software version (**–V4.0.0** is Version 4.0.0).
In addition to the publications listed, always read the Release Notes supplied with your products.

Table of Contents

Preface

Scope

This manual describes the operation of the TEAM Core Software applications. 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 current. Contact General DataComm if you require updated information for this or any other General DataComm product.

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About This Manual

This manual should be read in its entirety and all procedures completely understood before installing or operating the unit. This manual assumes a working knowledge of HP OpenView.

Notes, Cautions and Warnings

The notices that appear throughout this manual must be read prior to any installation or operating procedure. Examples of notes, cautions and warnings used in this manual are shown below.

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.*

TEAM Core Revision History

This release of TEAM Core Version 4.2.0 has been tested to be Year 2000 Compliant in accordance to GDC ENG-STD-003. TEAM Core 4.2.0 differs from the immediately preceding release as follows:

- TEAM Core Version 4.2.0 can now support the SC 5516 DS0-DP product.

Preceding Versions	Description of Change
TEAM Core 4.1.0	Supports the SC 5516 DSO-DP product.
TEAM Core 4.0.0	Supports the SC 7723-MR and GT 1033 Multi-Rate products. Approved for operation on Solaris 2.7, Solaris 2.8, HP OpenView 6.1 and HPUX 11.0
TEAM Core 3.1.0	Supports the SC 800 T3 product.
TEAM Core 3.0.5	Supports long host ID names, up to 50 characters (previously limited to 16), minor fixes, product compatibility additions.
TEAM Core 3.0.4	Minor fixes, Product compatibility additions.
TEAM Core 3.0.3	Minor fixes, Product compatibility additions.
TEAM Core 3.0.2	Supports Group Configuration functions. Enhanced product compatibility.
TEAM Core 1.7	Supports the assignment of Alarm Severity. Supports TEAM 7624 applications.
TEAM Core 1.6	Circuit submap ("managed pair") functionality. Line Statistics Collector application. Firmware Download application. Support for TEAM 7000 and TEAM 700 applications.
TEAM Core 1.5	Solaris/HPOV/HPUX10.x Compatibility with Front Panel Poll Rate.
TEAM Core 1.3	Supports redundant SCM cards. Supports Firmware Download functions. Revisions to Configuration screens.
TEAM Core 1.2	Provides a Power Supply Status display and Manual Discovery procedures. Supports E1 LTUs (32 DS0s in backplane data highways).

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TEAM Core Operation Manual

Chapter 1: Introduction to TEAM Core

Overview of TEAM Management

TEAM and TEAM Core software packages are distinct groups of HP OpenView applications that employ the Simple Network Management Protocol (SNMP) to configure and control the operation of a wide variety of GDC product cards housed in SpectraComm or UAS shelve systems.

Each individual TEAM software package (i.e., TEAM 521A, TEAM 800 T3, TEAM 7700, etc.) controls and communicates with its associated units by means of the SpectraComm Manager (SCM) card that occupies the shelf with those units. Each product card is described in its own Installation & Operation Manual, TEAM Operation Manual and Release Notes.

The TEAM Core software package described in this manual performs functions that extend beyond the product-specific TEAM applications, enabling the individual applications to function together in a seamless, integrated manner:

- TEAM Core applications configure the SCM for the desired functioning as the SNMP agent for units in its shelf.

- TEAM Core applications control the HP OpenView IP node discovery application shared by the individual TEAM applications. Through discovery and mapping, an OpenView Windows (OVW) database is built which defines the systems and equipment in the network (see Chapter 2 for details).

- In SC 5000 systems, TEAM Core provides Shelf Configuration which determines the operation of data highways and timeslots. Individual TEAM applications control the Multiple Data Set Emulator (DSE) cards which use the data highways on the SpectraComm shelf backplane to perform Data Terminal Equipment (DTE) interface functions and exchange data with a Line Terminating Unit (LTU) card.

- In UAS 7000 systems, TEAM Core coordinates the all of the backplane functions.

Note   *Refer to Table 1-1 for a list of all TEAM-managed network elements intended for operation in a SpectraComm 5000 shelf system.*
Refer to Table 1-2 for TEAM-managed elements intended for use in a UAS 7000 shelf system.

SCM Card Overview

TEAM Core software manages and communicates with a SpectraComm Manager (SCM) using SNMP to comprehensively manage the network. The SCM acts as the SNMP agent through which TEAM management applications communicate with units and other compatible equipment. The SCM receives SNMP **set** and **get** commands from TEAM Core and sends equivalent commands to the selected unit via the shelf backplane. The SCM also generates and sends unscheduled, unsolicited messages (or traps) to the management application in response to events occurring at the unit, especially alarm conditions.

Management communications are directed to the SCM card Internet Protocol (IP) address. From there the SCM card uses a slot addressing scheme to relay commands and responses between TEAM applications and hardware components over the SpectraComm shelf backplane. The SCM is transparent to the user since the TEAM applications operate as though they were communicating directly with the hardware units.

The bus structure of the SpectraComm shelf backplane allows the SCM card to act as a shared management agent for compatible components installed in the shelf. Daisy chain cables can extend the backplane bus to a second shelf. This use of the SCM as a staging point for SNMP activity conserves the number of Internet Protocol (IP) addresses required for management functions.

Network Elements Overview

The tables below list all of the TEAM-managed SpectraComm and UAS network elements that use the TEAM Core applications.
Table 1-1 lists elements intended for a SpectraComm shelf with a SCM card at Version 5.x.x.
Table 1-2 lists elements intended for a UAS shelf with a SCM card at Version 7.x.x.

Each table describes the elements as follows:

- whether TEAM Core Auto Configuration is supported

- whether TEAM Core Auto Discovery is supported

- whether TEAM Core Firmware Download is supported

- whether a Master/Remote functionality is supported

- whether the network element is Telnet-compatible

Note   *To ensure all individual network element features are supported, the elements should be installed in the proper shelf system (SC or UAS) and the associated SCM card must be at the proper version for that shelf.*

Table 1-1   TEAM-managed SpectraComm Shelf Elements

Managed Network Elements	TEAM Application	Telnet/Craft w/SCM	Standalone Craft	Discover Remotes	Auto Config	Firmware Download	Can be Master or Remote
SCM Version 5.x.x	TEAM Core	✔				✔	
SC 202 Modem	TEAM 202				✔		✔
SC V.F 28.8/33.6 Modem	TEAM V.34	✔				✔	✔
SC V.34 4-Port Modem	TEAM V.34	✔				✔	✔
SC V.34 DBU	TEAM V.34	✔				✔	✔
SC Dual V.34 Modem	TEAM Dual V.34	✔					✔
SC 5001 T1 LTU	TEAM 5001	✔			❋		
SC 5002 E1 LTU	TEAM 5002	✔			❋	✔	
SC 521 All Rate DDS DSU	TEAM 521	✔			✔	✔	
SC 521A DSU	TEAM 521A	✔	✔		✔	✔	✔
SC 521A/S DSU	TEAM 521A	✔	✔		✔	✔	✔
NMS 510 DSU	TEAM 521A						Remote only
NMS 520 DSU	TEAM 521A						Remote only
SC 5034 DSE	TEAM 5034/90	✔					
SC 5090 DSE	TEAM 5034/90	✔				✔	
SC 553 T1/FT1 DSU	TEAM SC 553	✔	✔	✔	✔	✔	✔
SC 5506 OCU-DP	TEAM 5506/5516	✔			✔	✔	
SC 5516 DS0-DP	TEAM 5506/5516	✔			✔	✔	
SC 5520 DSE	TEAM 5520	✔			❋	✔	
SC 5553 DSE	TEAM 5553	✔				✔	
SC 800 T3 DSU	TEAM 800 T3	✔	✔	✔	✔	✔	✔

Note   ❋ *Auto Configuration of the SC 5001, SC 5002 and SC 5520 consists of Highway Configuration information only.*

Table 1-2   TEAM-Managed UAS Shelf Elements

Managed Network Element	TEAM Application	Telnet/Craft w/SCM	Standalone Craft	Discover Remotes	Auto Config	Firmware Download	Can be Master or Remote
SCM Version 7.x.x	TEAM Core	✔				✔	
SC 2011 DATX	TEAM 2011						
SC V.F 28.8/33.6 Modem	TEAM V.34	✔				✔	✔
SC V.34 4-Port Modem	TEAM V.34	✔				✔	✔
SC V.34 DBU	TEAM V.34	✔				✔	✔
SC Dual V.34 Modem	TEAM Dual V.34	✔					✔
SC 611 NTU	TEAM 600						
SC 613	TEAM 600						
SC 616 LTU	TEAM 600						
DC 610 NTU	TEAM 600						Remotes only
DC 612 NTU	TEAM 600						Remotes only
DC 621 NTU	TEAM 600						Remotes only
GT 128 NTU	TEAM 600		✔		✔		✔
700G2, 700G3	TEAM 700		✔				
700AG2, 700AG2NZ, 701T2, 702G2, 710D2, 711D2	TEAM 700		✔	✔	✔		✔
720G1, 720G2, 721T2, 730D1, 730D2, 731D2,	TEAM 700		✔				Remotes only
GT1020, GT1030, GT1033 Multi-Rate, GT2020, GT2030,	TEAM 700		✔				Remotes only
7001, 7002	TEAM 7000	✔			✔		
7022	TEAM 7000	✔			✔	✔	
7616, 7616MP, 7616NZ	TEAM 7600	✔		✔	✔	✔	
7624	TEAM 7600	✔			✔		
7626	TEAM 7600	✔		✔	✔	✔	
7722	TEAM 7700	✔		✔	✔	✔	
7723 MR	TEAM 7600	✔		✔	✔	✔	

TEAM Core Applications

TEAM Core software consists of separate applications which are grouped by their TEAM Core function and menu that provides access to them. Note that some applications are available via more than one menu. Detailed information and procedures are provided in the chapters referenced in _Table 1-3_.

Table 1-3   TEAM Core Application Matrix

TEAM Core Function	Application	Universe Map Menu	Shelf Submap Menu	Front Panel Menu	Reference
Performance	Line Statistics	✔			Chapter 6
	Front Panel		✔		Chapter 3
	What Are You...		✔	✔	
	Power Supply Status		✔		
Configuration	Firmware Download	✔			Chapter 6
	Maintenance	✔	✔	✔	Chapter 4
	Shelf Configuration	✔			Chapter 5
	Configure	✔	✔	✔	Chapter 4
Fault	Poll Shelf	✔			Chapter 3
	Set/Unset Time on Shelf	✔			
Misc	Information	✔	✔		Chapter 3
	Alarm Severity	✔	✔		
	Front Panel Poll Rate	✔	✔		
	Note Pad		✔		
Demand Poll and Auto Poll				✔	Chapter 3

Accessing TEAM Core Applications

The TEAM Core applications are accessed by selecting an object and then using the menu on one or more of the following hierarchies: the TEAM Universe submap menu, the shelf submap menu on an SCM icon, and /or an SCM Front Panel Display **Select** menu. While most applications are available via multiple hierarchies, some applications have only one means of access. Refer to _Table 1-4_, _Table 1-5_, and _Table 1-6_ to become familiar with the menu location of each TEAM Core application.

Although many submaps can be opened simultaneously, only one object may be selected at a time, with TEAM menu options in all submap windows applying to that selected object. Note that a selected object is active even if the submap containing the object is closed.

TEAM Universe Map Menu

The table below depicts TEAM Core applications which can be accessed from the HPOV menu bar. Select the object you intend to work with by clicking once on its icon. Then select the desired TEAM Core application from the Universe submap menu. Refer to subsequent chapters for detailed application descriptions and procedures.

Table 1-4   TEAM Applications Accessed from the Universe Map

Universe Map Menu	TEAM Core Applications	Description
Performance	Line Statistics...	Configures an SCM to collect statistics from selected device types in the TEAM Universe.
Configuration	Firmware Download...	Downloads new firmware to devices in the SpectraComm shelves, as well as remote units linked to those devices.
	Shelf Configuration...	Configures backplane data highway and timing parameters required for an SC 5000 system.
Fault	Reset Power Supply Status	Resets a power supply alarm monitor and recalculates wattage statistics.
	Poll Shelf...	Demands an SCM poll its shelf to discover new cards and redraw the Shelf submap.
	Set Time on Shelf...	Enables or Disables a periodic time signalling scheme to synchronize an SCM and the devices under its management.
	UnSet Time on Shelf...	
Misc	Agent Templates...	Not active for SCM-managed applications
	Information...	Read-only information on the TEAM application software version and copyright
	Alarm Severity...	Assigns a severity category (Major, Minor, or Warning) to each alarm for each equipment type.
	Front Panel Poll Rate...	Sets a default polling interval which takes effect each time the Front Panel display is opened.

Note   *The Agent Templates are used only by stand-alone products (TEAM 540, TEAM 553, etc.) and are discussed only in documentation accompanying those products.*

Shelf Submap Menu

The table below depicts TEAM Core applications which can be accessed from the shelf submap HPOV menu bar. Select the desired SCM by clicking once on its labeled icon at the bottom of a shelf slot. Then select the desired TEAM Core application from the shelf submap menu. Refer to subsequent chapters for detailed application descriptions and procedures.

Table 1-5   TEAM Applications Accessed from the Shelf Submap Map

Shelf Submap Menu	TEAM Core Applications	Description
Performance	Front Panel...	With an SCM icon selected, launches an SCM Front Panel display with status LEDs and a Select menu for accessing TEAM Core applications. With a Power Supply icon selected, launches a Front Panel display for the Power Supply.
	What Are You...	Brief read-only information SCM software and MIB versions, as read from the database and from the SCM.
	Power Supply Status...	Displays a power supply front panel display with two usage indicators: watts required by the SCM-managed devices and available wattage in the shelf.
Configuration	Configure...	Configures an SCM with IP addressing and routing. Displays expanded read-only SCM software information.
	Maintenance...	Sets up the Time, Date and the Alarm Scan status for an SCM.
Misc	Information...	Brief read-only information on the TEAM Core software version and copyright
	*Alarm Severity...	Assigns a severity category (Major, Minor, or Warning) to individual alarms for each equipment type.
	*Front Panel Poll Rate...	Sets a default polling interval which takes effect each time the Front Panel display is opened.
	Note Pad...	Opens a shell tool for running a text editor, mail tool or other method for keeping records on the system.

The SCM Front Panel Select Menu

The Front Panel display is an application of TEAM Core which also provides menu access to the rest of the TEAM Core applications. At the Shelf submap Performance menu, select **Front Panel** from the menu, then click on the **Select** button to display an embedded menu of several TEAM Core applications. The following table briefly describes the applications as they appear on the Select menu. Refer to subsequent chapters for detailed application descriptions and procedures.

Table 1-6   TEAM Applications Accessed from the SCM Front Panel

Select Button Menu Items	TEAM Core Applications	Description
Performance	What Are You?...	Brief read-only information about SCM software and MIB versions.
Configuration	Configure...	Configures an SCM with IP addressing and routing. Provides expanded read-only SCM software information.
	Maintenance...	Sets the Alarm Scan status for an SCM.
Demand Poll	Activates an immediate update of the SCM Front Panel LEDs.	
Auto Poll	Sets an interval for the Front Panel display update: 15, 30, 60 seconds, or Disable.	
Exit	Dismisses the Front Panel application.	

Window Features in TEAM Applications

The example screens below describe the window features that are common to all TEAM Core application windows and their subordinate windows. For more information on a specific application and its procedures, refer to Chapters 3 - 6.
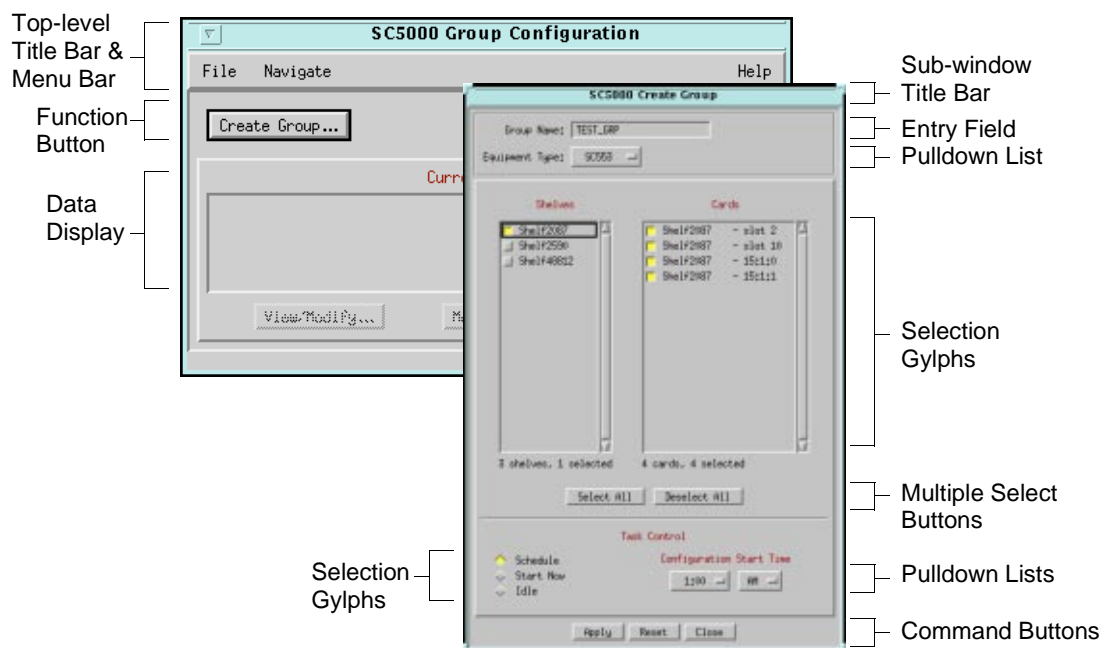
Table 1-7   Typical Application Window Features

Window Feature	Description
Title bar	Identifies the specific TEAM application running in the window, i.e., Group Configuration, Firmware Download, etc.
Triangle button	Click to minimize window to an icon; double-click to restore. Available only when TEAM software is running on a SUN workstation under HP OpenView and when the user has defined the required window manager settings.
Menu bar	Provides menus for application-specific utilities along with common utilities, such as File->Exit and Help. Located under the Title Bar.
Name field	Identifies the SCM currently communicating with TEAM Core by displaying the shelf name, and SCM card slot number. Located below the menu bar.
Command buttons Function buttons	Click command buttons to execute a command instantly, such as Reset, Cancel or OK. and Add. Click a function button to advance to a sub-window.
Pulldown lists	Pulldown and scroll to select options for equipment types, function parameters or operation controls for the application.
Gyphs	Click empty gyphs to select options, click filled gylphs to deselect.
Entry Fields	Click to activate entry field for user-defined data, such as IP addresses, shelf names, system information.
Multiple Select buttons	Allow global select and deselect of frequently grouped options.
Data Display	Window panel for displaying read-only information or selectable data.

Note   *Grayed-out buttons, fields, or lists represent options that are disabled or not available with the current SCM configuration. Refer to Chapter 4 for setting SCM Configuration parameters.*

Chapter 2: # Discovery & Mapping

Discovery

The Discovery function searches for devices on the network and is integrated with the OpenView IP node discovery application. Once an SCM card is discovered, the SCM is polled using the Simple Network Management Protocol (SNMP). The information gathered is used to build objects in the OpenView Windows (OVW) database. The objects represent cards in the shelf being monitored by the SCM.

Once devices are discovered, the network topology is displayed in hierarchical object maps that proceed from general to specific: Root Map, Universe Map, Shelf Map, Element Map, Connection Map and Circuit Map. Each map reveals a more detailed view of a smaller part of the communications system.

Auto-Discovery

TEAM Core uses Auto Discovery as the default discovery process. In this process, TEAM Core polls each new device it encounters in order to identify an SCM card. Once an SCM card is detected, Auto-discovery conducts further polling through the SCM using SNMP to build objects and construct maps in the OpenView Windows (OVW) database. The objects represent the SCM-managed network elements in the shelf. Likewise, network elements in the shelf that support Auto Discovery will autodiscover their associated remotes.

Manual Discovery

In situations where network size or data traffic requirements are a consideration, a manual discovery may be preferable to Auto Discovery. Auto Discovery may burden such networks, reducing the throughput of payload data. By disabling Auto Discovery, the user can identify for the TEAM applications a specific SCM to poll and thereby construct a shelf submap for it and the devices it controls. This manual method of discovery introduces less data traffic on the network by requesting only the routing tables of the specified SCM.

Note   *The default Auto-discovery is disabled by turning off HP OpenView polling. This is accomplished by disabling the TEAM Core netmon function or through the* **Options->Network Polling Configuration** *function. Disabling Auto-discovery by either method activates TEAM Core's manual discovery process, described below.*

Note   *In environments, such as DDS I that use the same channel for both primary and management data, the Discovery and Alarm Synchronization functions can interfere with primary data flow while they are running.*

Manual Discovery Procedures

Enable Manual Discovery by Stopping Netmon

Within the TEAM application, operation of the auto-discovery process is governed by a Local Registration File (LRF) called **`discover.lrf`** that is located in the **`/usr/OV/lrf`** directory. To disable auto-discovery by turning off netmon you need to modify that file as follows:

1. Open a shell tool on your workstation.

2. Stop the Shelf Discovery process by typing:
    `/opt/OV/bin/ovstop shelf_discovery`

3. Make a backup copy of the **`discover.lrf`** file so that it can be reloaded later in its original form if needed.

4. Load the **`discover.lrf`** file into an editor so that you can modify it.

5. Locate the following two lines in the file
    `/opt/OV/bin/shelf_discovery:`
    `OVs_YES_START:trapd,ovwdb,netmon::OVs_WELL_BEHAVED:15`

6. Delete **`,netmon`** from the second line and save the file. The two lines should now read:
    `/opt/OV/bin/shelf_discovery:`
    `OVs_YES_START:trapd,ovwdb::OVs_WELL_BEHAVED:15`

7. Update the process configuration by running OpenView Add Object on the discover.lrf file by typing:
    `/opt/OV/bin/ovaddobj /usr/OV/lrf/discover.lrf`

8. Restart the Shelf Discovery process by typing:
    `/opt/OV/bin/ovstart shelf_discovery`

9. Proceed to the Perform Manual Discovery procedure.

Enable Manual Discovery by Turning Off OpenView Polling

The auto-discovery process is part of the larger Status Polling procedure carried out by the HP OpenView software. To disable auto-discovery by controlling OpenView polling, carry out the following steps:

1. Display the Universe submap.

2. From the Options menu, select **`Network Polling Configuration:IP`**.
    A dialog box appears.

3. Suspend all automatic polling by deselecting **`Perform Status Polling`**.
    Suspend only polling for the discovery process by deselecting **`Discover New Modes`**.

4. Dismiss the dialog box.

5. Proceed to the Perform Manual Discovery procedure.

Perform Manual Discovery

After disabling auto-discovery as described above, an SCM can be manually discovered. Before this can occur, the SCM must be configured with the appropriate community name and must be available for communication. To perform manual discovery carry out the following steps:

1. At the Options menu, select **SNMP Configuration**.

2. Make sure that the SCM is showing the proper Community Configuration.

3. Make sure communication is possible with the SCM by pinging it and issuing an **snmpwalk** command. If this does not work, check the routing tables in the workstation to make sure there is a route available to the SCM.

4. Display the IP submap of the segment to which the SCM is connected.

5. From the Edit menu, select **Add Objects**.

6. In the resulting window select the **Computer** symbol class.

7. Modify the symbol by using the middle mouse button to drag the **SCM** Symbol Subclass onto it on the IP submap.

8. In the Add Objects dialog box, enter the label assigned to the SCM.

9. Set the IP Map Object Attributes. Be sure to enter both the hostname and the IP address.

10. When the process is completed, the Shelf Discovery application polls the SCM and draws the shelf topology based on the information it receives from the SCM.

Note   *If a valid hostname is not available, enter the IP address of the SCM in the Hostname field.*

Note   *The Read and Write Community Names which are set in HPOV SNMP Configuration must match the configured Community Names on the SCM. If they are incorrect, Discovery is unable to poll or update the SCM. The SNMP Configuration selection appears in the Options menu of the HPOV menu bar which appears at the top of all map windows.*

Mapping

After discovery of TEAM-compatible hardware systems in the network, a network topology is created from the OVW database. This topology is described by a series of hierarchical object maps that proceed from general to specific: Root Map, Universe Map, Shelf Map, Element Map, Connection Map and Circuit Map. Each map reveals a more detailed view of a smaller part of the communications system, as described below and in Figure 2-1.

Root Map

The Root map is at the top of the hierarchy, containing the TEAM icon and the IP Internet icon. The TEAM icon accesses all applications integrated with the TEAM Core. The IP Internet icon accesses a map of the workstation's communication environment. The Root map can also contain a TEAM Standalone icon if there are standalone applications installed on the workstation (TEAM 553, TEAM 540, etc.) and the devices they control. These standalone applications communicate individually with the workstation and do not employ the SCM card or the shared core functions.

Universe Map

Open the Universe map by double-clicking the TEAM icon in the Root map. The Universe map consists of one shelf icon for each SCM-equipped shelf communicating with the workstation. The Universe map can show lines between devices and/or shelves, designating that they are linked or have been configured by the user to be linked (refer to Chapter 2 and Chapter 4 for procedures). The Universe map can show the following links:

•   a dedicated remote device joined by a line to the shelf containing its master unit

•   a shelf-resident devices, such as the SC 521 DSU, joined by a line to a dedicated remote device

•   a shelf joined by a line to other shelves

•   a standalone remote device joined by a line to shelf devices appearing in the Universe map

Shelf Map

Open a Shelf submap by double-clicking on its shelf icon in the Universe map. The Shelf submap is generated from the OVW database. It is an integrated application under HPOV which displays the shelf and its installed individual devices. Since it is an OpenView appication, the Shelf map runs only when executed by OpenView, starting up when OpenView Windows starts. In the Shelf map, each TEAM compatible device has an selectable, octagonal device icon at the bottom of the slot image. The Shelf map is used to perform the following functions:

•   update the topology view in response to received traps

•   create and maintain shelf background and shelf content images

•   open shelf icons and associated submaps (described in the following paragraphs)

Connection Map

A Connection map is opened by double-clicking the line that connects two shelves in the Universe map. This map displays all individual circuits established between the two shelves. Each circuit is represented by the icons for its devices, connected to each other by lines that represent the communication path. Icons are automatically added as new circuits are configured.

Circuit Map

The Circuit map is created by the user to displays the link between two devices and to provide a convenient point of access for launching applications at both ends of a link. If the same shelf resident device type is at both ends of the link, the two devices can be selected together so that applications for both are launched by a single menu selection. If the circuit map is of a shelf resident device linked to a standalone device, their applications have to be launched separately.

Note   *A Circuit map should not be created for devices that are associated by means of an Add (or Wake Up) Remote configuration function.*

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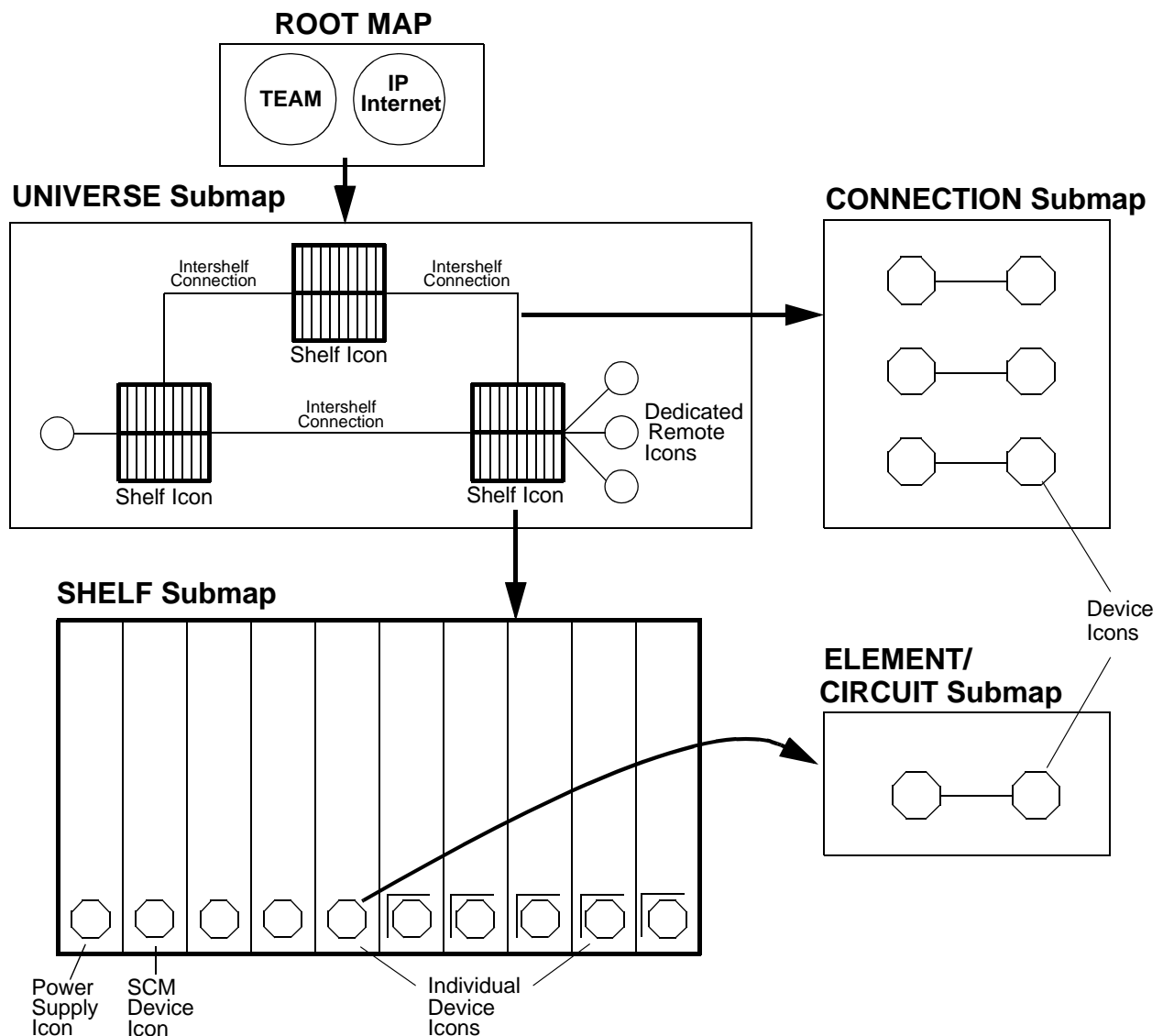
Figure 2-1   Map Hierarchy

Individual Device icons

A device icon represents a specific unit in a shelf. Click on an individual device icon to activate a menu bar for TEAM applications specific to the selected unit. The user can select multiple icons of the same type in order to launch multiple application windows simultaneously. A device icon with a border will open to a Circuit submap if one has been created. A device icon without a border indicates a unit with a dedicated remote and an associated Element submap. Double-click on any device icon to launch the selected unit's Front Panel display or Element submap.

Element Submap

Double-clicking on any device icon without a border opens the Element map. This map which displays the link between the master device in the shelf and its remote(s). The link can be point-to-point or multipoint. The remotes in an Element map are devices that cannot communicate independently with the TEAM controller workstation. The Element map is created automatically by the configuration function that associates the remote(s) with the master unit.

Dedicated Remote icon

Dedicated standalone remote units are user-configured to be linked with shelf-resident master units. They are TEAM software controlled only when linked with a master unit. Double-click a dedicated remote icon to open the unit's Front Panel. The icon is labeled with the slot:line:drop address. The slot identifies the master unit in the shelf. When selected/highlighted the menu bar is active for TEAM applications specific to the selected unit.

Power Supply Icon

Double-click the Power Supply icon to open the Power Supply Front Panel.

SCM Device icons

Double-click to open the SCM Front panel. When selected/highlighted, the menu bar is active for SCM and Core functions.

Map Symbols

The Root symbol accesses the system in OpenView. It is the highest level in the Submap hierarchy. This symbol is created in the OpenView Root Submap. Access the Universe submap by double clicking on this symbol.

The Shelf symbol is the logical representation of the SpectraComm Shelf in the Network. Each physical shelf on the network has a corresponding Shelf symbol in the Map. This symbol represents the SCM card plus all the cards in the shelf. Access the Shelf submap by double clicking on this symbol.

The SCM symbol represents the SCM card in the SpectraComm Shelf. This symbol is created in two places when the SCM is discovered by netmon:

- • IP Map creates an SCM symbol in the Internet Submap

- • Shelf map creates an SCM symbol on the Shelf Submap, representing the SCM card within the shelf. The status source for this symbol is set to Compound (Propagate).

Mapping Procedures

Creating a Circuit Map

Unlike other self-generating maps that display portions of the TEAM universe, circuit maps are created by the user. Do not create a Circuit map for master and dedicated remote devices that are associated by means of an Add (or Wake Up) Remote configuration function. The configuration function automatically creates an Element map for those devices.

To create a Circuit map:

1. Open the two maps that contain the ends of the circuit to be mapped. At least one of those two maps must be a Shelf map. If the Circuit map is to contain a standalone device, you need to open the TEAM Standalone icon in the Root map to access the icon for that device.

2. Select the shelf resident device that is to be one end of the circuit and the basis of the map. If both ends of the circuit are to be shelf resident devices, you can start with either end. If one end is a standalone device, you must begin with the shelf resident device.

3. Select **Create Circuit Submap...** from the menu bar Configuration menu. A circuit map is displayed which contains one icon to represent the selected device.

4. Select the icon for the device that is to be the second end of the link. From that device's Edit menu, select **Copy: From This Submap**.

5. Click in the new Circuit map. From its Edit menu, select **Paste**. When the second icon is pasted into the map, the application automatically adds the line that represents the connection between the two devices.

Note   *The TEAM Core application will allow the user to specify any two devices as the ends of a circuit. Make sure that the created Circuit map accurately represents a real communication link.*

Shelf Map Background Image

The Shelf map application can be configured to represent the SpectraComm Shelf and its contents in an OpenView background image. The image is synchronized with the current shelf configuration and displays the shelf with all SCM cards in the proper locations. Shelf submap symbols are aligned with their corresponding card image in the background image. The default configuration enables background graphics. You can set this capability by using the Shelf Map Configuration Dialog Box, which is accessed as follows:

For HPOVWv5.x:

Map->Maps...->Describe/Modify:Shelf Map:Configure For This Map...

For HPOVWv6.x:

Map->Properties...->Shelf Map:Configure For This Map...

Shelf Map Synchronization

Shelf Map synchronization occurs when the Shelf map application is started. During synchronization, OpenView displays a **Synchronizing** message on the status line of any displayed submaps. The Shelf map creates symbols for new network objects to update the Submaps that use the database and to update alarm status. Note that the Shelf map will not appear in the list of applications on opening dialog boxes until initial synchronization is completed. At that point, the Shelf map accepts and handles incoming OpenView events and topology changes.

The Shelf map application also displays the synchronizing message during lengthy operations, such as updating a shelf graphic. Since the Shelf map synchronizes in conjunction with other OpenView applications, the synchronization message will also display when any one of these applications are synchronizing.

Note   *During synchronization, the Shelf map application cannot respond to some OpenView requests or user requests, such as deleting symbols and objects.*

Shelf Map Editing

The Shelf Map allows the user to Add, Delete and Cut/Paste map symbols via the OpenView user interface. Note that these operations are not available during map synchronization. Refer to the HP OpenView User's Guide for additional details.

- Adding symbols involves both icon and connection symbols which are accessed via different menu items in OpenView. The Shelf Map function does not accept additions of icon or connection symbols on the application plane of the map. However, you can to add any symbol to the user plane.

- Deleting a symbol from the map also deletes it from the SCM tables.

- The Cut/Paste function permits the pasting of a symbol in the user plane of the map. The status of the symbol is kept synchronized with the device it represents.

Note   *Exercise care in deleting symbols from the shelf map. If a device symbol is deleted in error, power to the device has to be cycled before the device can be discovered and its symbol restored to the map.*

Shelf Submap Editing

The Shelf symbols on the TEAM Universe submap provide access to Shelf Submaps. A Shelf Submap contains a symbol for each card in the corresponding shelf. The SCM card proxies SNMP messages to the other cards in the shelf. It also maintains a table of all cards in the Shelf. Use the shelf submap to delete a card or other device completely from the system, as described below.

Note   *Note that physically removing a card from a shelf or disconnecting a device from the system does not delete it from the Shelf Submap.*

1. Remove the card or other device from the SCM Node Table. In the case of a central site device, that means physically removing the card from the shelf. In the case of a remote device, that means disconnecting it.

2. At the TEAM workstation, select the shelf from the Shelf Submap. Select the device you are deleting, pull down the Edit menu, and select **Delete**.

Universe Map Editing

The TEAM Universe submap is accessed through the Root symbol in the OpenView Root Submap. There is only one Universe submap on each map. It contains a symbol for each SpectraComm Shelf discovered.

These Shelf symbols can be modified using the Describe/Modify Object Dialog Box. The label of the system is the text name as assigned in the system configuration application. Events in the Events Category application reference the shelf selection name as the source of the event.

Identifying an SCM

If HPOV Discovery is run before the TEAM application is installed, an SCM may be discovered and added to the IP submap as a generic object. This sometimes occurs during a new system setup. Identified as a generic object, the SCM will not be discovered or available when the TEAM applications are subsequently installed. To properly identify the SCM, perform the following:

1. Delete the SCM generic object.

2. Ping the device so that the SCM is properly discovered and identified by an SCM object.

Chapter 3:   TEAM Core Applications

The TEAM Core Applications

This chapter describes the TEAM Core applications that are grouped under the Performance, Miscellaneous and Fault menus of the HPOV menu bar, as follows:

Performance Applications

- SCM Front Panel Application
- What Are You window
- Information window
- Poll Rate Application

Miscellaneous Applications

- Alarm Severity Application
- Power Supply Front Panel
- Information Application
- Note Pad Application

Fault Applications

- Poll Shelf Application
- Set/Unset Time on Shelf Application

Additional TEAM Core Applications

The remaining TEAM Core applications are described in subsequent chapters:

- Chapter 4:   SCM Configuration Application

- Chapter 5:   Shelf Configuration Application and
  Maintenance Application

- Chapter 6:   TEAM Core Utilities
  Firmware Download Application
  Group Configuration Application
  Line Statistics Collector Application

Front Panel Application

Clicking the Performance menu **Front Panel** selection opens the Front Panel display for a selected SCM. Table 3-1 describes the LEDs and icons on the display. Front Panel procedures are described below.

Table 3-1   SCM Front Panel Selections

Front Panel Display	LEDs / Icons	Description
	GDC logo	Displays version information of the unit when clicked.
	SD LAN RD LAN	Send or Receive Data LAN indicates transitions while the SCM is sending/receiving management data through its LAN port to/from the TEAM workstation.
	SD WAN RD WAN	Send or Receive Data WAN indicates transitions while the SCM is sending/receiving management data through its WAN port to/from the TEAM workstation.
	ND	Network Data indicates transitions while the SCM is sending management data on the shelf backplane to/from a device it controls.
	NR	Network Response indicates transitions while the SCM is receiving management data on the shelf backplane to/from a device it controls.
	INS	Illuminates green to indicate proper In Service operation.
	ON LED	Power on
	TM LED	Test Mode illuminates bright red while the SCM performs its Power ON test sequence.
	ALM LED	Indicates an alarm condition; color of LED reports the highest priority of alarm occurring at the SCM. Orange for a major alarm Yellow for a minor alarm Green for an informational alarm Dark red for no alarm conditions in the SCM.
	Select Button Menu	Performance... What Are You? displays the software versions of the SCM software and MIB.
		Configuration... Accesses the Configure and Maintenance applications. (Refer to chapter 4 for application details.)
		Demand Poll updates the LED states by polling the unit on-demand. At the bottom of the display, the time of the last poll is displayed in white. A yellow display indicates auto polling is disabled.
		Auto Poll sets the polling interval: 15, 30, 60 seconds or Disable
	Exit	Dismisses the Front Panel display.
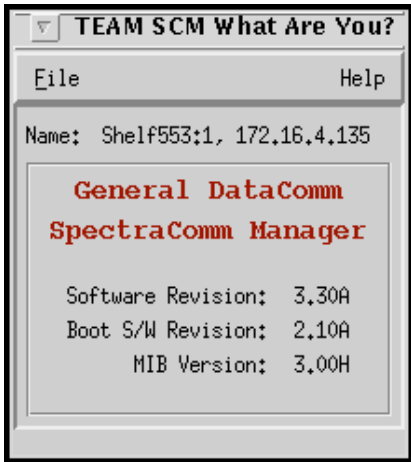
Front Panel Procedures

1. Select the SCM you intend to work with in the HPOV shelf submap window. Then, at the Performance menu, select **Front Panel**.

2. As an alternate method, double click the mouse on the slot icon for the unit. A display of the selected SCM Front Panel appears.

3. If working with remote units:
    On the shelf submap, a boxed slot icon indicates no associated remotes and an unboxed icon indicates a master device that has an associated remote. Double-click on the slot icon with a remote to open the link submap. Then double-click on the desired icon in this link submap to access the unit's Front Panel display.

4. Note that each time the Front Panel display of an SCM is launched, its initial polling rate is determined by the Front Panel Poll Rate selection of the submap window Misc menu.

5. The Front Panel LEDs reflect the states of the actual indicators on the SCM card in the shelf:

    *   Bright green LED indicates ON

    *   Bright green with a double arrow indicates transition events.

    *   Dark green indicates OFF

6. From the Front Panel display, use the select button to access the other TEAM applications for the SCM.

What Are You Window

The What Are You? window is accessed from the Front Panel Select menu or from the shelf submap Performance menu of a selected SCM. It displays the read-only software information relating to the selected unit.

Table 3-2   SCM What Are You? Window
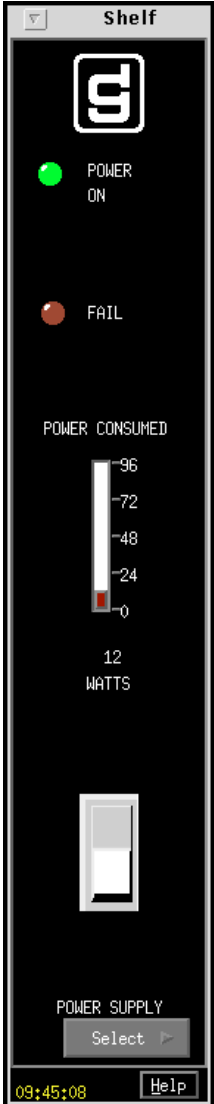
Typical Display	Fields/Selections	Description
	Name	Identifies the SCM currently communicating with TEAM Core by displaying the shelf name, and SCM card slot number, as read from the SCM.
	Software Revision	Displays the revision level of the SCM operating software, as read from the database.
	Boot S/W Revision	Displays the revision level of the SCM boot software, as read from the database.
	MIB Version	Displays the revision level of the Management Information Base (MIB) file that enabled SNMP control of the SCM card, as read from the database.

Power Supply Status Window

With a power supply icon selected at the shelf submap, click the Performance menu **Front Panel** selection to open a generic power supply status window. This application can also be accessed by a double-click on the power supply icon in the shelf submap. When the application is launched, it polls the shelf to identify managed devices and determine the power requirements. The read-only status window displays graphed and numeric power usage information for the shelf, with the scale of the graph adjusted based on the following factors:

- type of shelf (16-slot or 10-slot)
- type of power supply (single or redundant)
- single shelf or two-shelf installation

Table 3-3   Power Supply Status Window

Typical Power Supply Status	Indicators/Selections	Description
	Power ON	Indicated power is supplied to the unit.
	Fail	Indicates a failure condition.
	Power Consumed	Bar graph display of the total power requirement for all SCM-managed devices in the shelf (or shelves) as compared to the wattage available.
	Watts	Numeric display of Watts required to operate SCM-managed devices in the shelf or shelves.
	Select Menu	Demand Poll permits an additional single poll of the shelf on demand only.
		Auto Poll selects the intervals for polling the shelf at: 15, 30, 60 seconds or Disable.
		Exit dismisses the Power Supply Status Window.

Special Considerations

- The application receives information on the current state of the power supplies without having to poll the shelf, since the SCM generates traps in response to the addition, removal, or failure of a power supply.

- The displayed bar graph is updated whenever a power supply is added or removed.

- The height of the bar on the graph represents the portion of the available wattage required to operate the SCM-managed devices in the shelves. The presence of any non-managed devices is not reflected by the display.

- The following maximum Watt values can appear on the bar graph:

Max. Watts	Shelf Characteristics
100	10-slot shelf
96	16-slot shelf with a single power supply
192	16-slot shelf with a redundant power supply
192	Pair of 16-slot shelves with a single power supply
288	Pair of 16-slot shelves with a redundant power supply in one shelf and a single power supply in the other
384	Pair of 16-slot shelves with a redundant power supply in each

Miscellaneous Applications

Alarm Severity

The Alarm Severity window is accessed from the Misc menu of any HPOV submap. This application allows you to designate a severity for each alarm type as it is reported by each device type (such as a SC 553 or UAS 7624). These designations will apply to all devices of the selected type. When an alarm is designated with a Major, Minor or Warning severity at this window, the Alarm Detail window and the product icon symbol will report the alarms by color-coded severity:

- Orange LEDs or symbols report a major alarm.

- Yellow LEDs or symbols report a minor alarm.

- Blue LEDs or symbols report an alarm warning.

The Alarm Severity window, shown below, has one menu, File, and three scroll boxes that are labeled with the individual severity categories. Directions for assigning severities to alarms follow the figure.
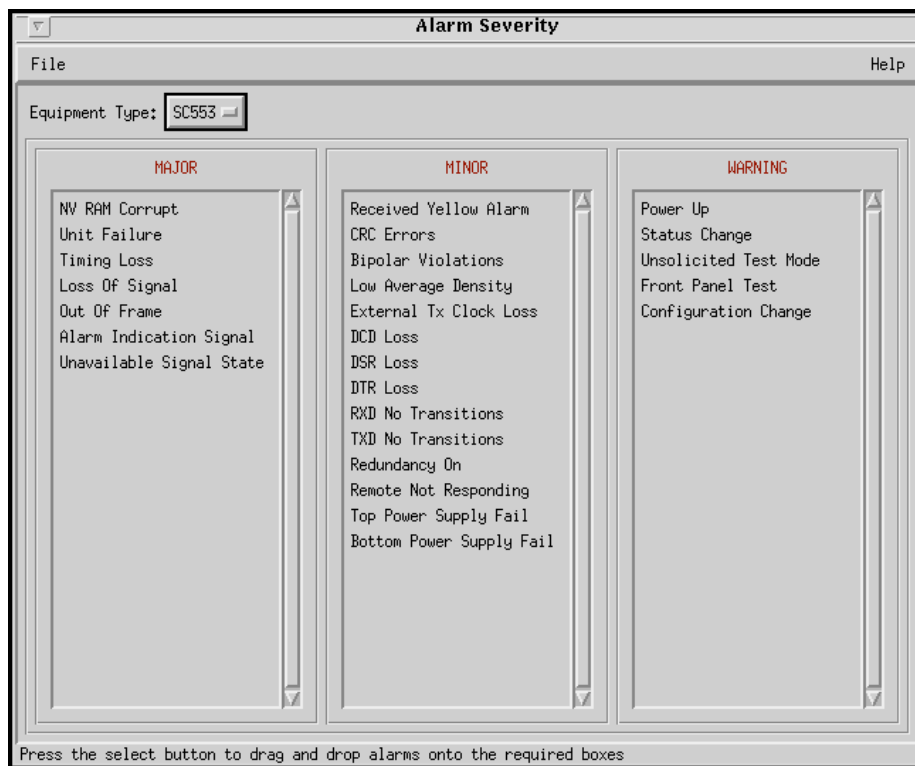
Figure 3-1   Alarm Severity Window

Alarm Severity Menus

The File menu provides a `Save to File` option for activating and saving pending Alarm Severity settings. The `Refresh` option discards unsaved setting without closing the Alarm Severity window. The `Reset to Defaults` option restores Alarm Severity settings to the stored defaults stored for the selected device type. An `Exit` command dismisses the application window.

Alarm Severity Procedures

1. Click on the **Equipment Type** field and select the device type you need to work with. While you hold the button down, the field displays the list of device types for which alarm severities can be adjusted. The three scroll boxes display the current severity assignments for the alarms that the selected device type can report.

2. To cancel out all previous assignments made by the Alarm Severity application, select **Reset To Defaults** from the File menu.

3. Position the pointer on the desired alarm, then click and drag the mouse into the desired severity scroll box. Then release the button. The alarm condition name is transferred into the new scroll box.

4. Repeat step 3 for each alarm condition you need to change. When you're done making changes, select **Save To File** from the File menu.

5. Dismiss the Alarm Severity window by selecting **Exit** from the File menu. The severity designations you have made will remain in effect until they are changed.

Note   *Not all TEAM applications support the Alarm Severity function. Refer to the specific TEAM applications Release Notes to determine whether its Alarm Detail window identifies alarms by severity.*

Information Application

The Information application is accessed only from the HPOV menu bar Misc menu when a shelf or SCM is selected. It displays the TEAM Core version and copyright information related to the selected unit. The window File menu provides an **Exit** selection for dismissing the window.

Note Pad Application

The Note Pad application opens a shell tool which provides a text editor on the workstation running the TEAM software. Typically, Note Pad is used to keep records on the system.
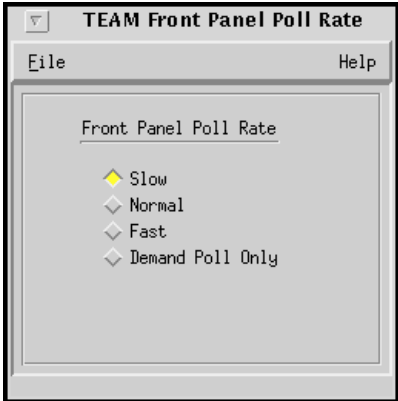
Agent Templates

This application may appear on some Miscellaneous menus but will be inactive and appear grayed-out for SCM-managed applications.

TEAM Front Panel Poll Rate Application

The Front Panel Poll Rate application is accessed only from the HPOV menu bar Misc menu. The poll rate selected in this window globally determines the initial polling rate for all Front Panel displays linked to a TEAM Core application, regardless of which individual application is accessing the unit. The initial polling rate is activated each time a Front Panel opened. The Front Panel Poll Rate window is shown and described below.

Table 3-4   TEAM Front Panel Poll Rate Window

Typical Display	Selections	Description
TEAM Front Panel Poll Rate File Help Front Panel Poll Rate ◆ Slow ◇ Normal ◇ Fast ◇ Demand Poll Only	Slow	Globally sets the initial polling rate to obtain the most precise polling frequency.
	Normal	Globally sets the initial polling rate to obtain a normal polling frequency using a normal allocation of resources.
	Fast	Globally sets the initial polling rate to a high polling frequency while allocating more communication and processing resources to maintaining the display.
	Demand Poll Only	Allows one poll at a time, on demand.

Figure 3-2   TEAM Front Panel Poll Rate

TEAM Front Panel Poll Rate Menus

The File menu provides a `Save to File` option for saving polling instructions or data for future use, and an `Exit` command which dismisses the application window.

TEAM Front Panel Poll Rate Procedures

1. Click on the desired poll rate checkbox to set the Front Panel poll rate globally for all TEAM applications: Slow, Normal, Fast or Demand Poll Only.

2. From the File menu, select `Save to File` to store the setting for use by all TEAM applications.

3. From the File menu, select `Exit` to dismiss the application window.

Note   *The polling rate for an individual unit can be temporarily changed by using its Front Panel Select menu to enable Auto Poll. The changed rate will be in effect for that unit only for the duration of the session, and will be discarded when the Front Panel display is closed.*

Fault Applications

TEAM Core includes three applications from the Fault menu of the Universe map. These applications are described below

Poll Shelf

The Poll Shelf menu selection instructs the core application to have the SCM card poll its shelf to detect the presence of any newly installed cards that are subject to control by the SCM. If the polling detects one or more newly installed cards, the application redraws the Shelf submap.

Normally the process of updating the Shelf submap occurs automatically as cards are installed. The Poll Shelf feature is provided as a backup mechanism for the automatic functionality.

Set/Unset Time on Shelf

The menu selection Set Time on Shelf turns on a process by which every night at midnight the application sends a time signal to the SCM card in the selected shelf. The SCM card synchronizes its time keeping functions to that signal and broadcasts a time signal to the units it controls so that they are also synchronized. The menu selection Unset Time on Shelf turns off the process.

Reset Power Supply Status

The Reset Power Supply Status resets a power supply alarm monitor and recalculates wattage statistics.

Chapter 4: SCM Configuration

Overview

The SCM Configuration application provides a tool for configuring the SCM with Internetwork Protocol (IP) addressing and routing for the SpectraComm Manager (SCM) card. This application also specifies trap destinations. You must insure that these characteristics are properly set in order for the SCM card to perform its communication interface functions between the TEAM application workstation and the units it controls.

Note   *In versions of the TEAM Core software prior to Version 1.3, the configuration parameters that are now set by SCM Configuration were subject to the Agent Configuration function.*

Using Configuration Templates

Configuration procedures are described below. Throughout the text descriptions in this chapter, default values will be shown in `Bold`. Accompanying screens are representative and may appear differently on your system. Once a configuration has been defined for a desired unit functionality, it can be stored as a template on the workstation that runs the TEAM application. Any number of templates can be stored for retrieval when particular configuration settings are needed.

The three template functions (Save, Load and Compare) are accessed via the File menu. When you select a template function, a dialog window appears for specifying the template file name. To save configuration templates refer to the basic configuration steps below.

To load configuration settings from an existing template into the SCM, perform the following steps:

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 makes the template configuration settings the current operating configuration for the unit.

3. Select `Compare` from the File menu to compare the screen's configuration data to a specific template.

SCM Main Configuration Window

The main SCM Configuration window is launched from a unit's Front Panel Select menu or by selecting an SCM symbol on the shelf submap and then selecting **Configure** from the Configuration menu. When the main Configuration window opens, the application reads the current SCM configuration from the unit. The following figure and tables describe the SCM Configuration display and menus. Configuration procedures follow the tables.
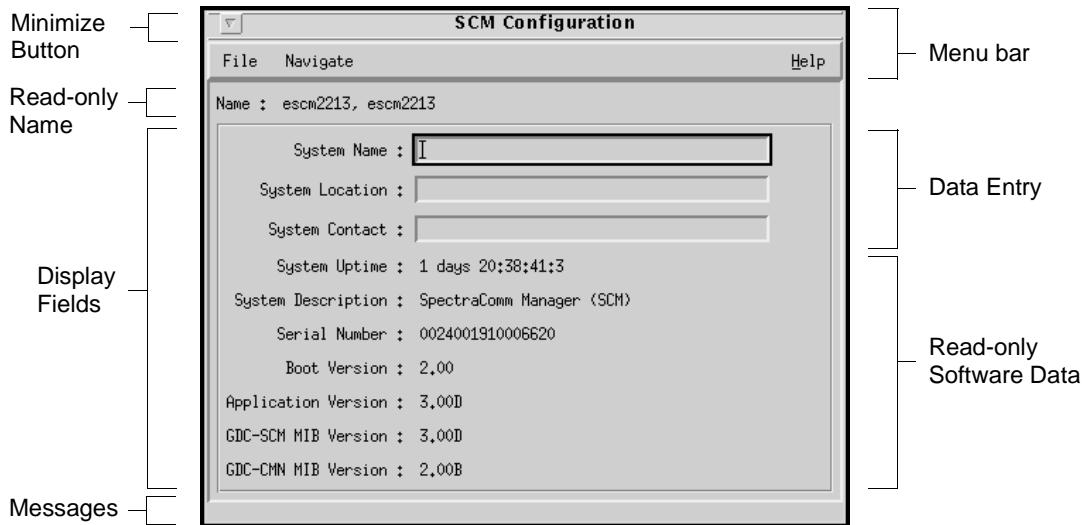
Main Configuration Window Display

Name is a read-only field that displays the IP Hostname of the SCM in the shelf and the slot number of the selected unit. This field appears with the same designation on all other subordinate screens. A **Message** area displays application activity and unit interaction in the lower left of the window.

Table 4-1   Configuration Window Display Fields

Fields	Items	Description
User Data	System Name	Used to identify the SCM card and its shelf.
	System Location	Used to identify the site address of the SCM card and its shelf.
	System Contact	Used to identify the name and telephone number of on-site personnel responsible for maintenance of shelf equipment administered by the SCM card.
Software Data (Read-only)	System Uptime	Displays time elapsed since the last time a reset was performed or power was cycled at the SCM
	System Description	Displays "SpectraComm Manager (SCM)"
	Serial Number	Displays the SCM card serial number.
	Boot Version	Displays revision level of the firmware boot-up code installed in the SCM
	Application Version	Displays revision level of the firmware application code installed in the SCM
	GDC-SCM MIB Version	Displays revision level of the MIB files installed in the SCM for control of the SCM
	GDC-CMN MIB Version	Displays the revision level of the Common MIB files installed in the SCM

Main Configuration Window Menus

The main Configuration window menu bar provides a File and Navigate menu for configuring the selected SCM. Use the **Navigate** menu to select the individual configuration option windows for change. Use the **File** menu for storage and retrieval of previously stored configuration template. describes the menu selections.

Table 4-2   Main Configuration Menu Selections

Menu Buttons	Selections	Description
File	Refresh	Causes all option settings to be read from the unit. Any pending edits are lost.
	Save to Unit	Causes all outstanding edits to be sent to the unit.
	Load Template	Allows the selection of an existing SCM template to be applied as edits to the current application. Your next **File-->Save to Unit** implements the template changes.
	Save to Template	Configuration data is saved as a specific template.
	Compare to Template	You can select an existing SCM template to be compared with the screen display.
	Exit	Terminates application with outstanding edits discarded first.
Navigate	Redundant SCM Options	Sets options that control the use of two SCMs in a primary and backup arrangement. Sets the frequency at which Alive Traps are generated.
	Trap Options	Sets options for trap addressing and criteria for generating and receiving traps.
	IP Routing Options	Displays and edits IP Routing table.
	Community Name Options	Sets community names and access options.
	Misc SCM Options	Enables/Disables firmware download and Telnet communications.
	All Screens...	Displays all subordinate windows of the SCM Configuration application
Help	Displays the Help on-line manual.	

SCM Configuration Procedures

1. Click on the **Navigate** button to display a menu of SCM configuration windows.

2. Select the first one in which you intend to make changes. In each configuration window, click on the desired input fields to open a list of available values for each option, then click on the desired value.

3. You can discard changes made in 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

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

4. Close a configuration window without losing changes by clicking on either the **OK** button or the push-pin glyph in the upper left corner of the window.

5. Continue to select other configuration windows to make additional changes. Refer to the following sections of this chapter for descriptions of each configuration window menu and its selectable options.

6. When you have accessed all the configuration windows for changes, use the main configuration window File menu to save all changes. Select **Save to Unit** to send the changes to the unit as the new current configuration. This activates the changes instantly in the unit.

7. If you attempt to Exit from SCM Configuration without having saved configuration changes a pop-up window appears with the message:

        APPLICATION HAS PENDING EDITS.
        The following screens have pending edits:
        Discard Edits and Exit Application?

    If you click on OK, any pending configuration changes are lost and the SCM Configuration application is closed. If you click on Cancel, the application remains open so that you may save the pending changes.

Note   *If you select* **Refresh** *during the configuration process, any configuration changes made in any configuration window will be lost unless they have been saved to the unit.*

Note   *You can keep multiple configuration windows open on-screen and move between them by clicking the mouse on the border of the window in which you intend to operate. The main configuration window remains on-screen throughout the configuration process.*
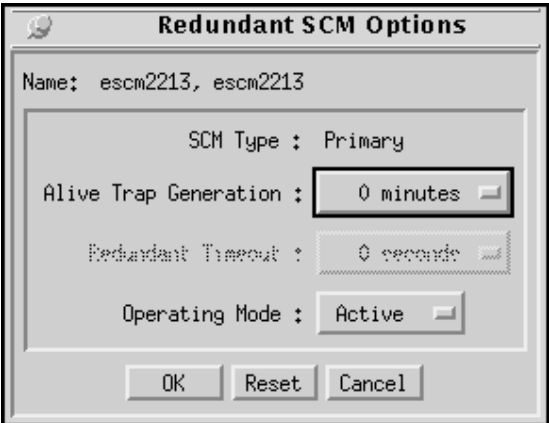
Note   *When you change a value or setting, the application displays the option name and the new value in white text, rather than black. The option will remain white until the changes are stored to the unit or a template or discarded.*

Redundant SCM Options Window

This window is accessed via **Navigate -->Redundant SCM Options** from the main window menu. This window (*Table 4-3*) allows you to set three SCM operating characteristics involved in the use of a backup SCM installed in the SpectraComm shelf. When there are two SCMs installed, each must be configured by means of a DIP switch as either the Primary or the Backup. The options in this window are associated with conditions where the Backup SCM takes over from the Primary SCM.

Table 4-3   Redundant SCM Option Selections

Redundant SCM Options Window	Selections	Description
	SCM Type	Displays Primary or Backup
	Alive Trap Generation	Displays how often the SCM transmits a trap that confirms its presence to the controller. Select: 0 (Disabled) or 5 to 60 minutes, in 5-minute intervals.
	Redundant Timeout	Specifies how long the Primary SCM is required to be inactive before the Backup SCM automatically takes over. When there is only one SCM installed in the shelf this option is grayed out.
	Operating Mode	In a Primary SCM, this is a read-only display that reads Active or Sleep. In a Backup SCM, you can select Active to put the Backup into operation and the Primary into Sleep mode. In this configuration, the two units will remain in these modes until a hardware reset is performed at the Primary SCM.
	OK	Dismisses the window, similar to a pin pull. Edits are maintained but not saved.
	Reset	Undoes pending edits since last "File --> Save to Unit" operation.
	Cancel	Same as Reset, and dismisses the screen.

Note   The **Redundant Timeout** *option is not available and appears grayed-out when there is only one SCM installed in the shelf.*

Note   *When using redundant SCMs, make sure that they are configured identically to minimize disruption when the Backup takes over.*

Trap Options Window

This window is accessed via **`Navigate -->Trap Options`** from the main window menu. The Trap options window (_Table 4-4_) allows you to configure traps supported by the SCM. Traps are used in SNMP to send unsolicited information to a network manager. The information usually consists of events or alarms sent to the network manager for reports or special processing. The SCM can store up to five Trap destinations. Each Trap destination includes the IP Address and UDP port of the network manager and the Community Name. _Table 4-5_ describes the SCM-supported traps.

Note   _The Trap Destination Table in the SCM must be filled out if a network manager is to receive Traps._
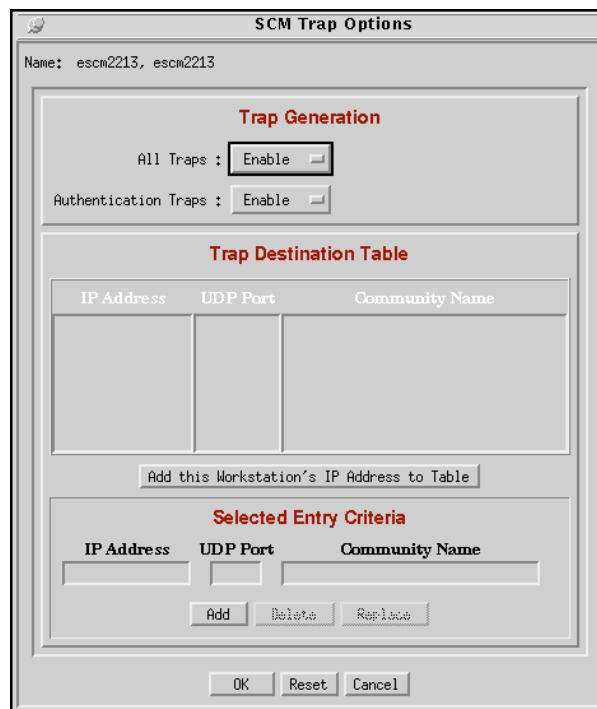
Table 4-4   Trap Options Window

Selections	Items	Description
Trap Generation	All Traps	Enables or Disables the Trap facility.
	Authentication Traps	Masks or unmasks the Authentication Failure Trap.
Trap Destination Table	Read-only list of IP addresses and their associated UDP ports and Community Names. Refer to procedures below.	
Selected Entry Criteria	IP address, UDP Port	Filled in by the user or by selecting a trap destination from the table
	Community Name	Used to add a new Community Name. Used to delete or replace a Community Name associated with an existing trap destination.
Command Buttons	OK	Dismisses the window, similar to a pin pull. Edits are maintained but not saved.
	Reset	Undoes pending edits since last **`File --> Save to Unit`** operation.
	Cancel	Same as Reset, and dismisses the screen.

Trap Definitions and Considerations

Once the SCM is plugged into the shelf, Cold Start, Link UP, Link DOWN, Express Poll and Alarm traps may be sent to the network manager whenever units or interfaces change state.
Refer to *Table 4-5* for a description of all SCM-supported traps.

Note   *The WAN interface, the DBU WAN interface, and the WAN interface of the SCM CTRL port can change states (UP or DOWN) during normal operation. Note that the Ethernet interface is never in the DOWN state.*

Table 4-5   SCM-supported Traps

Traps	Description
Cold Start Trap	Trap is sent when the Ethernet interface is UP. Trap is sent when the SCM or other network element is powered up.
Link UP Trap	Trap is sent when an network interface (other than Ethernet) comes up.
Link DOWN Trap	Trap is sent when a network interface (other than Ethernet) goes down.
Express Poll Trap	Trap is sent when the state of a network element changes. States are Inactive, Active, or Active with errors.
Alarm Trap	Trap is sent when a network element detects a change in its alarm information. The Alarm Trap can be masked in the Node Table by either turning off the alarm scan to a network element or through the SCM which toggles all alarm traps (Trap Control)
Authentication Failure	Trap sent when an SNMP command is received with an incorrect Community Name (can be masked by means of the Authentication Traps field)

Trap Procedures

Adding a Trap Definition

1. In the All Traps field, select **Enable**.

2. To send the Authentication Failure Trap at the appropriate time, select **Enable** in the Authentication Traps field. To prevent it from being sent, select **Disable**.

3. In the Selected Entry Criteria section of the window, click in the IP Address field, then type in the address of the intended destination.

4. Click in the UDP Port field, then type in the port number used by the SNMP manager.

Note   *Use the default port number (162) unless the system administrator requires a different port.*

5. Click in the Community Name field, then type in the Community Name associated with the Trap destination.

6. Click on the **Add** button to complete the edits.

7. Click on **OK** to commit the new Trap definition to the configuration.

Editing a Trap Definition

1. In the Trap Definition Table, click on the Trap definition that you want to edit. The Trap information appears in the corresponding Selected Entry Criteria fields.

2. Make the desired edits in the Community Name field.

3. Click on the **Replace** button.

4. Click on **OK** to commit the new Trap definition to the configuration.

Deleting a Trap Definition

1. In the Trap Definition Table, click on the Trap definition that you want to delete.

2. Click on the **Delete** button.

3. Click on **OK** to commit the new Trap definition to the configuration.

SCM IP Routing Options Window

This window is accessed via **Navigate -->SCM IP Routing Options** from the main window menu. This window (Table 4-6) allows you to configure IP routing options supported by the SCM. In the IP group of MIB-II there is an IP Routing Table that contains an entry for each route known to the SCM. The main function of the table is to equate each out-going IP packet with a route that provides the physical interface port. The routing table can be built via SNMP if there is an existing IP connection to one of the ports. The routing table is stored in volatile memory, and it is lost if the SCM is repowered. Table 4-7 provides examples of valid subnet masks.

Table 4-6 SCM IP Routing Options Window

Selections	Items	Description
IP Destination Table		Read-only list of IP destinations and their associated masks, interfaces, next hops and route types. (Refer to procedures below.)
Selected Entry Criteria		Used to add, delete or replace an IP destination from the routing table.
		Used to add, delete or replace a mask which is used to divide the IP addresses into network identifier and host identifier. (Refer to Table 4-7).
	Interface	Selects the routing interface type: GDC LAN Port, GDC WAN Port, LAN/WAN Port
	Next Hop	Direct indicates the IP address of the SCM. Indirect indicates the IP address of the default gateway.
	Route Type	Direct indicates target device is on the same segment. Indirect indicates target device is not on the same segment.
Command Buttons	OK	Dismisses the window, similar to a pin pull. Edits are maintained but not saved.
	Reset	Undoes pending edits since last **File --> Save to Unit** operation.
	Cancel	Same as Reset, and dismisses the screen.

Table 4-7   Examples of Valid Masks and Subnet Masks

Subnet Masks	Description		
255.0.0.0	Standard Class A network mask		
255.128.0.0	Class A network, 2 subnetworks		
255.192.0.0	Class A network, 4 subnetworks		
255.224.0.0	Class A network, 8 subnetworks		
255.255.0.0	Standard Class B network mask		
255.255.128.0	Class B network, 2 subnetworks		
255.255.192.0	Class B network, 4 subnetworks		
255.255.224.0	Class B network, 8 subnetworks		
255.255.255.0	Standard Class C network mask		
255.255.255.128	Class C network, 2 subnetworks		
255.255.255.192	Class C network, 4 subnetworks		
255.255.255.224	Class C network, 8 subnetworks		
Subnet Mask	**IP Address**	**Network Ident**	**Host Ident**
255.255.255.0	192.9.200.100	192.9.200.0	100
	192.9.200.200	192.9.200.0	200
255.255.255.128	192.9.200.200	192.9.200.0	200
255.255.255.128	192.9.200.100	192.9.200.0	100
	192.9.200.200	192.9.200.128	72
255.255.255.192	192.9.200.100	192.9.200.64	36
	192.9.200.200	192.9.200.192	8

Note   *This mask is the filter used to establish the Routing Table. It must be set by an experienced network administrator.*

Note   *The bits set to '1' in the mask correspond to the network identifier. The entire network identifier portion must be contiguous and to the left of the host identifier portion.*

SNMP Routing Procedures

Adding an IP Route

To add an IP Route:

1. Click in the **Destination** field and enter the appropriate address.

2. Click in the **Mask** field and enter the mask.

3. Click on the **Interface** field and select the interface type.

4. Click in the **Next Hop** field and enter the address of the next hop.

5. Select the appropriate route type from the **Route Type** field.

6. Click on the **Add** button.

7. Click on **OK** to commit the new IP routing definitions to the configuration.

Editing an IP Route

To edit an IP Route:

1. In the IP Destination Table select the item that you want to edit. The IP Routing information of the selected item appears in the **Selected Entry Criteria** fields.

2. Perform the desired changes.

3. Click on the **Replace** button.

4. Click on **OK** to commit the new IP routing definitions to the configuration.

Deleting an IP Route
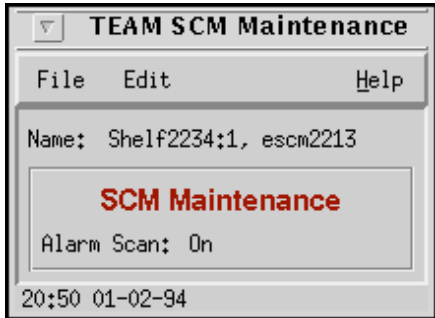
To delete an IP Route:

1. In the IP Destination Table select the item that you want to delete.

2. Click on the **Delete** button.

3. Click on **OK** to commit the new IP routing definitions to the configuration.

Maintenance Application

The Maintenance window is launched from a unit's Front Panel Select menu or by selecting an SCM symbol on the shelf submap, then select **Maintenance** from the Configuration menu. The application window allows you to control the Alarm Scan function for the selected SCM.

Table 4-8

Maintenance Application Window	Selection	Description
	File Menu	Exit dismisses the application.
	Edit Menu	Alarm Scan function: Select Enable or Disable
	Alarm Scan	Status display: ON or OFF.

Note   *The application periodically polls the SCM while the Maintenance window is open. It should not be left on display unnecessarily.*

Chapter 5: Shelf Configuration

Shelf Configuration for TEAM 5000 Applications)

The Shelf Configuration application provides the specialized configurations required for the operation of TEAM 5000 applications. These configurations include the backplane highway and timing parameters used to coordinate the Line Termination Units (LTU) and Data Set Emulator (DSE) units responsible for exchanging data over the data highway bus system. This system is part of the SpectraComm shelf backplane.

Shelf Configuration consists of the following functions:

- Shelf Timing
- Highway Allocation Status
- LTU Highway Configuration
- DSE Highway Configuration
- Slot Services Window

Exceptions

The TEAM Core Shelf Configuration is not used when the SCM is located in a UAS shelf with UAS 7000 series devices. Rather, the UAS 7000 devices use one of the following TEAM 7000 applications:

- TEAM 7000 T1 Shelf Configuration application
- TEAM 7000 E1 Shelf Configuration applcation

Shelf Main Configuration Window

The main Shelf Configuration window is launched by selecting a shelf icon from the Universe map, then select **Shelf Configuration** from the Configuration menu. When the main Shelf Configuration window opens, the application reads the current configuration data from the shelf.

The main Shelf Configuration window menu bar provides a File and Navigate menu for configuring the selected shelf. Use the **Navigate** menu to select the individual configuration option windows for change. Use the **File** menu for storage and retrieval of configuration settings. Table 5-1 describes the Shelf Configuration display and menus. Configuration procedures follow the tables.

Window
Manager Bar

Menu Bar

Messages
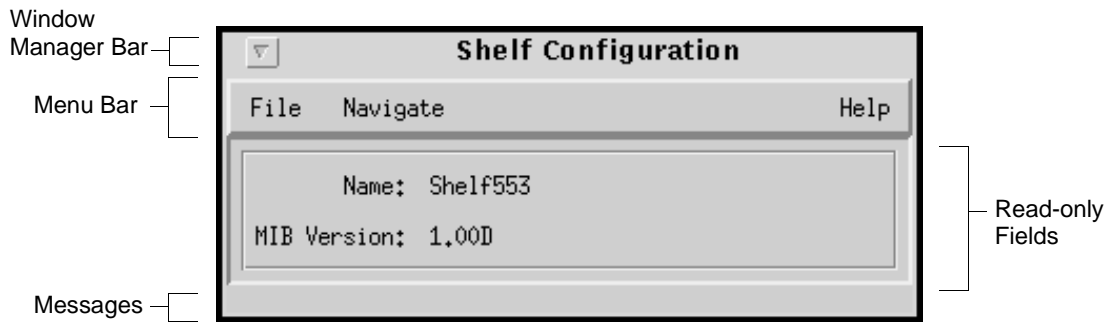
Read-only
Fields

Table 5-1   Shelf Configuration Window Fields and Menus

Fields	Items	Description
Display	Name	Read-only user-defined shelf name of the selected unit. This field appears with the same designation on all other subordinate screens.
	MIB Version	Displays revision level of the MIB file that enabled SNMP control.
File Menu	Refresh	Causes all option settings to be read from the shelf. Any pending edits are lost.
	Save to Shelf	Causes all outstanding edits to be sent to the shelf.
	Exit	Terminates application with outstanding edits discarded first.
Navigate Menu	Shelf Timing	Sets primary and fallback sources of the timing signals on the SpectraComm shelf backplane.
	Highway Status	Read-only display of individual timeslots that make up the four backplane data highways.
	LTU Highway Configuration	Configures an LTU to one of the four backplane data highways and makes DS0 assignments for various functions or conditions.
	DSE Highway Configuration	Configures a DSE to one of the four backplane data highways and makes timeslot assignments for exchanging data with its LSU.
	Service Status	Displays the current operating status of all devices in the shelf or shelves that are under TEAM control. Also commands a change in status (UP or DOWN) for each of up to 32 slots.
	All Screens	Displays all subordinate windows of the Shelf Configuration application.

Shelf Configuration Procedures

1. Access the Shelf Configuration window from the Universe map. The application reads the current configuration from the SCM each time you open this window.

2. Click on the **Navigate** button to display a menu of Shelf Configuration windows.

3. Select the first one in which you intend to make changes. In each configuration window, click on the desired input fields to open a list of available values for each option, then click on the desired value.

4. You can discard changes made in 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

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

5. Close a configuration window without losing changes by clicking on either the **OK** button or the push-pin glyph in the upper left corner of the window.

6. Continue to select other configuration windows to make additional changes. Refer to the following sections of this chapter for descriptions of each shelf configuration window menu and its selectable options.

7. When you have accessed all the configuration windows for changes, use the main Shelf Configuration window File menu to save all changes. Select **Save to Shelf** to send the changes to the shelf as the new current configuration. This activates the changes instantly in the shelf.

8. If you attempt to Exit from Shelf Configuration without having saved configuration changes a pop-up window appears with the message:

   > **APPLICATION HAS PENDING EDITS.**
   >
   > **The following screens have pending edits:**
   >
   > **Discard Edits and Exit Application?**

   If you click on OK, any pending configuration changes are lost and the Shelf Configuration application is closed. If you click on Cancel, the application remains open so that you may save the pending changes.

Note   *If you select **Refresh** during the configuration process, any shelf configuration changes made in any configuration window will be lost unless they have been saved to the shelf.*

Note   *You can keep multiple configuration windows open on-screen and move between them by clicking the mouse on the border of the window in which you intend to operate. The main configuration window remains on-screen throughout the configuration process.*

Note   *When you change a value or setting, the application displays the option name and the new value in white text, rather than black. The option will remain white until the changes are stored to the shelf or a template or discarded.*

Shelf Timing Window

This window is accessed via **Navigate -->Shelf Timing** from the main window menu. The SC 5000 system requires the timing signals in order for the DSEs and the LTU to maintain their proper timing relationship as they exchange data over the backplane data highways. The Shelf Timing configuration window (*Table 5-2*) allows the user to specify and control primary and fallback sources of the timing signals on the SpectraComm shelf backplane.The read-only **Name** field identifies the shelf.

Table 5-2 Shelf Timing Window Selections

Selection	Field	Description
Primary Clock Provider	Clock Provider	Selects the slot number of the device responsible for providing clock signals on the backplane data highway.
	Timing Source	Selects the source of the Primary Clock Provider's clock signal: None, Network, Internal, Station, Cascade, or External DTE Clock.
	External Timing Source	When External DTE Clock is activated at the Timing Source field, this field selects the DSE that passes external timing from its DTE along to the LTU.
Fallback Clock Provider	Clock Provider	Selects the slot number of the device responsible for providing clock signals on the backplane data highway if Primary Clock Provider fails.
	Timing Source	Selects the source of the Fallback Clock Provider's clock signal. None, Network, Internal, Station, or Cascade
Primary Clock Control	Auto Revert to Primary Provider	Automatically returns to primary Clock Provider when it becomes available. Select: Enable or Disable
	Current Clock Provider	Read-only display of the clock provider currently in use: Primary, Fallback or None
	Revert to Primary Provider	Commands a switch from the Fallback Clock Provider to the Primary Clock Provider.
Command Button	OK	Dismisses the window. Edits are maintained but not saved. Changes do not go into effect until you perform **Save To Shelf** in the main Shelf Configuration window.

Shelf Timing Considerations

- The **External Timing Source** option will not be available and will appear grayed-out unless the selected timing source is External DTE Clock.

- When the **External Timing Source** option is selected, you must also enable the **Auto Revert to Primary Provider** option.

- The pulldown lists for **Clock Provider** and **External Timing** will only display the slots and devices that are able to provide the required clock signal.

- When **Auto Revert to Primary Provider** is enabled, the application continues to check the status of the Primary Clock Provider while the shelf runs on Fallback Clock. The application automatically returns to Primary Clock Provider when it becomes available.

- When **Auto Revert to Primary Provider** is disabled, the shelf runs with Fallback Clock until operator manually returns the shelf to Primary Clock Provider.

Highway Allocation Status Window

This window is accessed via **Navigate -->Highway Status** from the main window menu. This window (Table 5-3) is a read-only display of the individual time slots that make up the four backplane data highways. Each backplane time slot is the equivalent of a DS0 at the LTU network interface. The read-only **Name** field identifies the SCM responsible for the shelf.

Table 5-3   Highway Allocation Window

Fields	Items	Description
Highway Labels	Highways 1-4	Displays the highway number and the device identification label and its slot number.
Timeslots	1 - 32	Numbered fields corresponding to the timeslots on each data highway. Slots 1 through 24 to support the SC 5001 LTU's T1 operation. Up to 32 time slots to support the SC 5002 LTU's E1 operation.
Allocation Status (Legend)	Yellow (SS:L)	A time slot and a line number are assigned to a DSE for a private (dedicated) line application.
	Orange (SS:L)	A time slot and a line number are assigned to a DSE for a switched line or restoral application.
	Green	An unassigned time slot.
	Tan	A time slot that is unavailable for assignment to any DSE.

Note   *Yellow or orange status indicators display the slot number and the line number (SS:L). The line number is always 1 for a DSE that only supports a single DTE. For DSEs which support two DTEs (such as the SC 5034) each data channel constitutes a separate line and requires a separate time slot.*

Note   *The Highway Allocation window is also displayed when you open the LTU or DSE Highway Configuration applications, dynamically updating itself as changes are made in those configuration windows. Pending (unsaved) configuration changes appear white until a **Save To Shelf** is performed.*

LTU Highway Configuration Window

This window is accessed via `Navigate -->LTU Highway` from the main window menu. This window (*Table 5-4*) allows you to associate an LTU with one of four backplane data highways. It also configures the relationships between time slots on the data highway and the DS0s that compose the T1or E1 line to which the LTU is connected. The read-only `Name` field identifies the shelf.

Table 5-4   LTU Highway Configuration Window

Selections	Items	Description
Global Selection Buttons		Global commands which set all of the DS0s to: All on Highway, All on Cascade or All Not Present.
Selected LTU		Selects the LTU to be configured from a pulldown list of slot numbers/device types. Slot numbers 1 - 32 Device types: LTU 5001 or LTU 5002
Selected LTU DS0 Assignment	Operating Mode	Selects the LTU operating modes: In Concentrator mode, the LTU interfaces DS0s to the selected data highway or cascade port (according to the checked boxes) In CSU mode, the LTU interfaces all DS0s to its cascade port
	Data Highway Selection	Selects the data highway to which the LTU interfaces DS0s.
Check Boxes	DS0s 1 - 32	Click a check box to assign the associated DS0 to the highway or cascade, or to assign the DS0 as Busy Out or Not present.
Command Button	OK	Dismisses the window, similar to a pin pull. Edits are maintained but not saved. Changes do not go into effect until you perform `Save To Shelf` command.

LTU Highway Configuration Procedures

1. Click on the **Selected LTU** field and select the LTU that you intend to work with.

2. Click on the **Operating Mode** field and select the mode in which the LTU is to function. If you select CSU all DS0s are set to Cascade Port; no further configuration is then necessary. If you select Concentrator, continue with the remaining steps of the procedure.

3. Click on **Data Highway Selection** and select the backplane data highway the LTU is to use for exchanging data with DSEs.

4. Click on one of the global selection buttons at the top of the window – All on Highway, All on Cascade, or All Not Present, selecting the category where the greatest number of DS0s will be in the completed configuration. All DS0s will be checkboxed accordingly.

5. Change individual DS0 settings in the checkboxes to achieve your intended configuration.

6. Repeat steps 1-5 for each LTU to be configured. The application retains the pending changes for the LTU(s) you have already configured. When you click on the Data Highway Selection button the selections for highways that are already assigned to LTUs are grayed out.

7. When all edits are made, dismiss the window while preserving the pending changes by clicking on the **OK** button. If desired, the window can be left open while you use other applications.

8. Put the configuration into effect by using the Shelf Configuration window File menu selection, **Save to Shelf**.

Note   *When CSU operating mode is selected, the Data Highway Selection field is grayed-out and all DS0s are set to Cascade Port in the checkboxes.*

Note   *In the case of an SC 5001 LTU, only DS0s 1 - 24 are valid available for assignment.*

DSE Highway Configuration Window

This window is accessed via **Navigate -->DSE Highway** from the main window menu. This window (Table 5-5) enables you to specify which time slots of a selected highway the DSE will use to exchange data with its LTU. Time slots are grouped by function: Private Line or Switched Network/Restoral. Procedures for this application follow the table. The read-only **Name** field identifies the shelf.

Table 5-5   DSE Highway Configuration Window

Selections	Fields	Description
Selected DSE		Selects the DSE to be configured from a pulldown list of slot numbers/line numbers/device types.
Private Line Time Slot Assignment or Switched Network/ Restoral Time Slot Assignment	Highway 1-4	Selects the data highway to which the DSE interfaces DS0s.
	Slots 1-32	Numbered fields corresponding to the timeslots on each data highway. Slots 1 through 24 to support the SC 5001 LTU's T1 operation. Up to 32 time slots to support the SC 5002 LTU's E1 operation.
	DS0s 1 - 32	Click a check box to give the DS0 the selected time slot assignment: Private Line or Switched Network/Restoral
Command Button	OK	Dismisses the window, similar to a pin pull. Edits are maintained but not saved. Changes do not go into effect until you perform **Save To Shelf** command.

Note   *For those products that do not support simultaneous use of their private and switched lines, selecting a checkbox in one category will render the other category anavailable. Checkboxes will appear grayed-out.*

Note   *In the Selected DSE pulldown list, line number is always 1 for DSEs that only support a single DTE. For DSEs which support two DTEs (such as the SC 5034) the list will provide individual line selections for that DSE.*

Special Considerations

- DSEs that employ constant, dedicated line connections to their remotes, such as SC 5520 and SC 5553 DSEs, require private line time slots.

- DSEs that perform dial-up modem functions, such as SC 5034 DSEs, require switched network time slots.

- A DSE that normally operates on a dedicated connection and has restoral capability for use in case of trouble with that connection requires time slot assignments for both functions.

- The application enforces limits based on the DSE device type. An SC 5520 DSE, for example, can be assigned only one time slot, since it employs a single DS0 on the line connected to the LTU network interface. A DSE that performs fractional T1 or fractional E1 functions can be assigned as many time slots as are required to support its fractional T1/E1 data rate. When you assign multiple time slots for fractional T1/E1, they must be sequential, just as the DS0s on the line must be sequential.

DSE Highway Configuration Procedures

1. Click on the **Selected DSE** field and select the DSE that you intend to work with.

Note   *If you are configuring an SC 5034 DSE, remember that time slots for Line 1 and Line 2 need to be configured separately.*

2. Click on the Highway field for the desired time slot category (Private Line or Switched Network/Restoral). Select the backplane data highway the DSE is to use for exchanging data with its LTU.

3. Click on the check box(es) for the time slot(s) you are assigning to the DSE.

4. If you have more than one LTU to configure you can return to Step 1, select the next DSE, and repeat the procedure. The application retains the pending changes for the DSE(s) you have already configured, and grays out the time slots you have already assigned.

5. When all edits are made, dismiss the window while preserving the pending changes by clicking on the **OK** button. If desired, the window can be left open while you use other applications.

6. Put the configuration into effect by using the Shelf Configuration window File menu selection, **Save to Shelf**.

Note   *Private Line Time Slot assignments and Switched Network/Restoral Time Slot assignments are mutually exclusive. When a DS0 is selected in one area, the other area will be unavailable for that highway and will appear grayed-out.*

Note   *In the case of an SC 5001 LTU, only DS0s 1 - 24 are valid and available for assignment.*

Slot Service States

This window is accessed via **`Navigate -->Services States`** from the main window menu. Users can view the current operating status of all devices in the shelf (or pair of shelves) that are subject to TEAM software control by means of color-coded status indicators (Up or Down) for up to 32 card slots. For card slots that contain multi-line devices, such as SC 5034 DSEs, it displays a separate indicator for each line. The read-only **`Name`** field identifies the shelf. Table 5-6 describes the selections at this window, with procedures following the table.
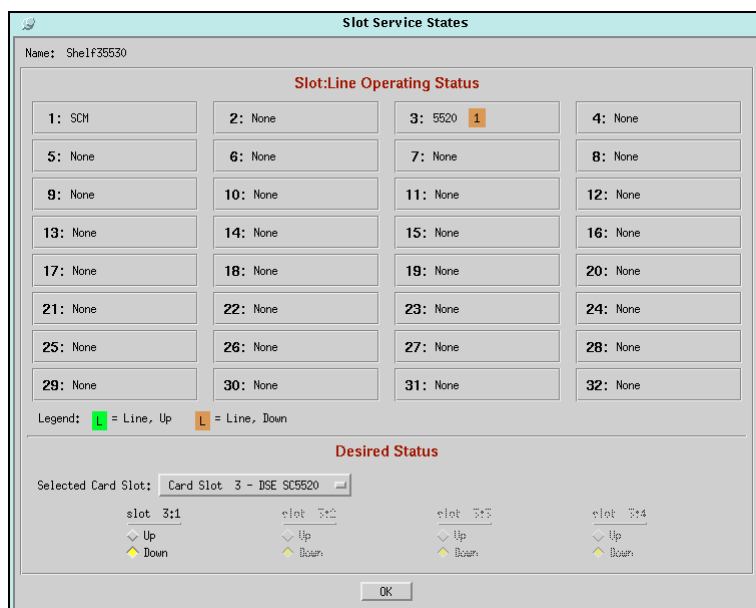
Table 5-6 Slot Services Configuration Window

Selections	Fields	Description
Slot:Line Operating Status	Slots 1-32	An Operating Status display consists of up to 32 numbered fields which correspond to card slots of a pair of SpectraComm shelves ribbon cabled together in a single system. For a one-shelf system, only fields 1-16 are valid.
Status Indicator (Legend)	Green	Indicates the line status of the device in that slot is currently UP.
	Tan	Indicates the line status of the device in that slot is currently DOWN..
Desired Status	Select Card Slot	Selects individual card slots from a pulldown list in order to make operating status changes. For multi-line devices, status can be changed on a line by line basis, for up to 4 lines.
Command Button	OK	Dismisses the window. Edits are maintained but not saved. Changes do not go into effect until you perform **`Save To Shelf`** command.

Note   *Green or tan status indicators identifies the applicable line number. The line number is always 1 for DSEs that only support a single DTE. For DSEs which support two DTEs (such as the SC 5034) the indicators will be numbered appropriately. Status for each line in a multi-line device can set separately Up or Down.*

Note   *The Shelf Configuration application enables Up/Down checkboxes for as many lines as the device supports.*

Slot Service Procedure

1. Click on the **Selected Card Slot** field to select the card slot and device that you intend to work with.

2. Under the appropriate line identifier, click on the check box for the operating status you want assigned to that device and line (**Up** or **Down**)

3. Repeat this process to change the status of as many devices as is desired. The application retains the pending changes for the previous changes.

4. When all edits are made, dismiss the window while preserving the pending changes by clicking on the **OK** button. If desired, the window can be left open while you use other applications.

5. Put the configuration into effect by using the Shelf Configuration window File menu selection, **Save to Shelf**.

Chapter 6: TEAM Core Utilities

Overview

The TEAM core software application includes utility functions that are launched from higher order maps and do not fit into the same categories as the operations performed from the Shelf map. These utility applications are described in this chapter:

- Firmware Download *for All TEAM applications*
  (launched from the Universe map with a shelf icon selected).

- Group Configuration *for TEAM SC553 application only*
  (launched from the Root map with the TEAM Universe icon selected)

- Line Statistics Collector *for TEAM SC553 application only*
  (launched from the Root map with the TEAM Universe icon selected)

Firmware Download Application

SpectraComm Firmware Download application is launched only from the Configuration menu of an OVW submap after a shelf has been selected. The application allows you to download new firmware files into the devices controlled by the SCM, including devices in the SpectraComm shelf as well as some of the remotes linked to those devices.

Standby Firmware Support

Some SCM-compatible devices can store two revisions of operating firmware, designated as the Active firmware revision and the Standby firmware revision. The Active revision is the firmware currently operating in the device. The Standby revision is alternate firmware to which the device can be commanded to switch over. The functionality for switching between firmware versions is part of the Firmware Download application.

In devices that support standby firmware, new firmware is initially the standby revision when it is loaded. When the new firmware becomes the active revision, the previous firmware is retained as the standby revision. This arrangement permits restoration of the earlier revision if there are problems with new firmware.

Note   *IMPORTANT: Before performing any firmware download or switchover procedure, be sure to consult the individual TEAM Operation Manual and any accompanying Release Notes for the target device.*

Main Firmware Download Window

Firmware Download Application begins with the main Firmware Download window, shown below. The window's File menu provides the **Refresh** command and an **Exit** command. The Navigate menu is used to access the subordinate windows: Task Queue and Download History. The main window is described in *Table 6-1* and *Table 6-1*. Procedures follow the table.

SpectraComm Firmware Download			

(Screen image: SpectraComm Firmware Download window)

File   Navigate   Help

Name: Twister, twister

Equipment Selection Criteria

Target Equipment: SC 553

SS:LL:DD	Active FW Rev	Standby FW Rev	Boot Rev
3: 1: ··	·2.··.·2	·2.··.·2	F·
11: 1: 0	0:.00.0:	0:.00.0:	E·
11: 1: 1	02.00.01	01.01.00	D·

Select All   Deselect All

Task Type Selection   **Download Order**

◆ Download Firmware   ◆ All At Once
◇ Switch Active Firmware   ◇ Sequential
◇ Download & Switch Active Firmware

Firmware Selection Criteria

Filename: Filename:
Equipment Type: Equipment Type:
FW Rev: FW Rev:
Select Boot Code...   Select Appl Code...

Execute Now   Execute Later ...

Note   *The time required to complete a download varies greatly depending on Target Equipment type.*

Table 6-1 Firmware Download Window Selections

Field	Item	Description
Equipment Selection Criteria	Target Equipment Select	A pull-down list for specifying the type of equipment targeted to receive the firmware download.
	Target Equipment List	A selectable list which details the individual units targeted to receive the firmware download: SS:LL:DD identifies the device by its Slot:Line:Drop address. Active FW identifies the revision level of the firmware currently operating in the selected unit. Standby FW identifies the revision level of thee alternate firmware. Boot Rev identifies the hardware revision of the SC 553 printed circuit board. (Not displayed for other device types.)
	Global Select Buttons	Select All and Deselect All buttons which globally control the selection boxes in the Unit List.
Task Type Selection	Download Firmware	Downloads the specified firmware to be immediately active. If the target device supports standby firmware, specified firmware is downloaded and stored as the standby version.
	Switch Active Firmware	Activates the standby firmware in the target device and shifts the previous active firmware to standby status.
	Download & Switch Active Firmware	Downloads the specified firmware, then activates it and shifts the previous active firmware to standby status.
Download Order	All At Once	Executes a simultaneous download to all selected devices.
	Sequential	Executes downloads to the selected devices one at a time.
Firmware Selection Criteria	Boot Code Data	Read-only displays of Boot Code and Application Code data: Filename of the firmware to be loaded Equipment Type intended for download Firmware Revision Level
	Application Code Data	
	Select Boot Code Button	Opens a Filter window for specifying the intended firmware filename and path to be downloaded.
	Select Appl Code Button	
Execute Buttons	Execute Now Button	The selected task is put into a queue to be performed as soon as there is not another task running
	Execute Later Button	Opens the Task Queue window for scheduling the selected task at a future time.

Note   *If the target device does not support standby firmware, the Standby FW column in the Equipment list will display 00.00.00. If the target device does not support standby firmware, newly downloaded firmware is automatically active firmware. For such devices, the buttons for* **Switch Active Firmware** *and* **Download & Switch Active Firmware** *will not be selectable and will appear grayed-out.*

Note   *If the target device does not employ boot code, the Select Boot Code button will not be selectable and will appear grayed-out.*

Note   *IMPORTANT: If you intend to download firmware to master devices and their remotes, first select each remote separately and then download its firmware manually. When all remotes have been downloaded, then you can group the master devices and download firmware to that group. Do not use the* **Select All** *button on remotes. Doing so will cause the remote's standby firmware to be lost.*

Firmware Download History Screen

The Firmware Download History window is accessed from the Navigate menu of the main Firmware Download window. This window is a read-only display of detailed status information on past download operations. *Figure 6-1* illustrates a typical download history. Use the **Close** button at the bottom of the window to dismiss the Download History display.

```
┌─────────────────────────────────────────────────────────────────┐
│                SpectraComm Firmware Download History              │
│                                                                   │
│  Name:  ShelfName                                                 │
│                                                                   │
│ >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>    │
│                                                                   │
│              Task Type : Download Firmware                        │
│         Scheduled time : Jan 2 11:00 AM 1997                      │
│             Start time : Jan 2 11:00 AM 1997                      │
│       Target Equipment : SC 553                                   │
│         SCM IP Address : 192.4.2.30                               │
│              Boot Code : NONE                                     │
│              Appl Code : V010000v.083                             │
│               End time : Jan 3 1:04 AM 1997                       │
│                                                                   │
│     Slot  2 Line  1 Drop  0 - SUCCESS for revision 01.01.00       │
│     Slot  3 Line  1 Drop  0 - SUCCESS for revision 01.01.00       │
│                                                                   │
│ <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<    │
│                                                                   │
│ >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>    │
│                                                                   │
│              Task Type : Switch Firmware                          │
│         Scheduled time : Jan 3 1:00 AM 1997                       │
│             Start time : Jan 3 1:00 AM 1997                       │
│       Target Equipment : SC 553                                   │
│         SCM IP Address : 192.4.2.30                               │
│              Boot Code : NONE                                     │
│              Appl Code : V010000v.083                             │
│               End time : Jan 3 1:04 AM 1997                       │
│                                                                   │
│     Slot  2 Line  1 Drop  0 - Bad Unzip for revision 01.01.00     │
│     Slot  3 Line  1 Drop  0 - Bad Unzip for revision 01.01.00     │
│                                                                   │
│ <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<    │
│                                                                   │
│                          [ Close ]                                │
└─────────────────────────────────────────────────────────────────┘
```

Figure 6-1   Download History Screen

Firmware Download / Switchover Procedures

Firmware Download application allows you to perform the following Firmware procedures:

- Setup
- Immediate Firmware Download
- Immediate Firmware Switchover
- Scheduled Download
- Scheduled Firmware Switchover

Note   *Download Setup is used to prepare for both downloading as well as switchovers.*

Download Setup Procedure

Setup prepares for either immediate or scheduled download of firmware. It also allows the user to perform a scheduled or immediate switchover from active to standby firmware on those devices with standby capability. A switchover can be performed without a download of new Firmware.

1. Make sure the firmware to be downloaded is resident on the workstation running TEAM.

2. In the TEAM Universe map, select the shelf that contains the SCM you need to use.

3. Select **Firmware Download...** from the Configuration menu. The SpectraComm Firmware Download window appears.

4. Click on **Target Equipment** and select the desired device type. A list will appear of all units of the selected device type that are controlled by the SCM and identifying data for each one. For the SC 553 DSU, an additional column for Boot Rev data will display.

    Slot field displays 1 – 16 when the SCM controls a single shelf.
    Slot field displays 1 – 32 when the SCM controls a pair of shelves.
    Line 1is displayed for most devices.
    Line 1 and Line 2 is displayed for the Dual V.34 modem, representing Device A and Device B.
    Drop 0 is displayed for the local device that occupies the shelf with the SCM.
    Drop 1 and higher are displayed for remote devices.

5. In the Target Equipment list, select the device(s) to be setup for download or switchover.

Note   *Click on a device in the list to select and deselect it individually. Use the two select buttons under the list to globally* **Select All** *or* **Deselect All**.

6. Select the task type (**Download Firmware**, **Switch Active Firmware**, or **Download & Switch Active Firmware**.)

Note   *For equipment that does not support standby firmware,* **Download Firmware** *is the only task type.*

7. If more than one device has been selected for download, select the download order as **Sequential** or **All at Once**.

Note   *If any of the devices being downloaded are remotes, you must select the* **Sequential** *download order.*

8. For downloads, click on a `Select (Application or Boot) Code...` button. A Filter window appears for specifying the filename and path for the new code files.

Note   *For equipment that runs boot code, you can download boot code and application code in a single operation.*

9. Proceed to the Immediate Download procedure to execute the task now.
   Proceed to the Scheduled Download to execute the task at a later time.

Immediate Download Procedure

1. After completing the Download Setup procedure, click on the `Execute Now` button.
   A confirmation box appears.

2. Click `Yes` in the confirmation box to proceed. The application adds the task to its Task Queue. If there is no other task already executing, the download begins immediately.

3. Click `No` in the confirmation box to resume changes to the Download Setup, or to exit the Firmware Download application.

4. You can view the Task Queue window by selecting it from the Navigate menu. If there are other tasks already in the queue, a newly added `Execute Now` task can result in considerable delays.

Scheduled Download Procedure

1. Click on the `Execute Later` button in the main Download window. A confirmation box appears.

2. Click `No` in the confirmation box to return to the Setup window, or to exit the Firmware Download application.
   Click `Yes` in the confirmation box to proceed. The application adds the task to its Task Queue and displays it highlighted with an initial status of `To be scheduled`.

3. To queue the task for execution at the earliest opportunity, select `Queued` from the pulldown list. This is the same as using the `Execute Now` button.

   To delay the execution of the task, select `Scheduled` from the pulldown list. Now, make selections at the `month`, `day`, `hour`, `minutes`, and `AM/PM` fields to define when the task will be queued for an immediate download.

Note   *If you specify a date that has already passed in the current year, the application assumes that the date falls in the coming year.*

Note   *Selections made at the* `Scheduled/Queued` *field will not go into effect until you click on the* `Change Task Status` *button (step # 4, below).*

4. Click on the `Change Task Status` button to put the new settings into effect and update the Task Queue display. To change scheduling, select the task and then repeat steps 3 - 4.

5. Use the `Close` button to dismisses the Task Queue window.

Firmware Download Task Queue Window

The Firmware Download Task Queue window is accessed from the main Firmware Download window's Navigate menu. The Task Queue window displays status information on current, pending, and past download or switchover operations. It also allows the user to schedule tasks.
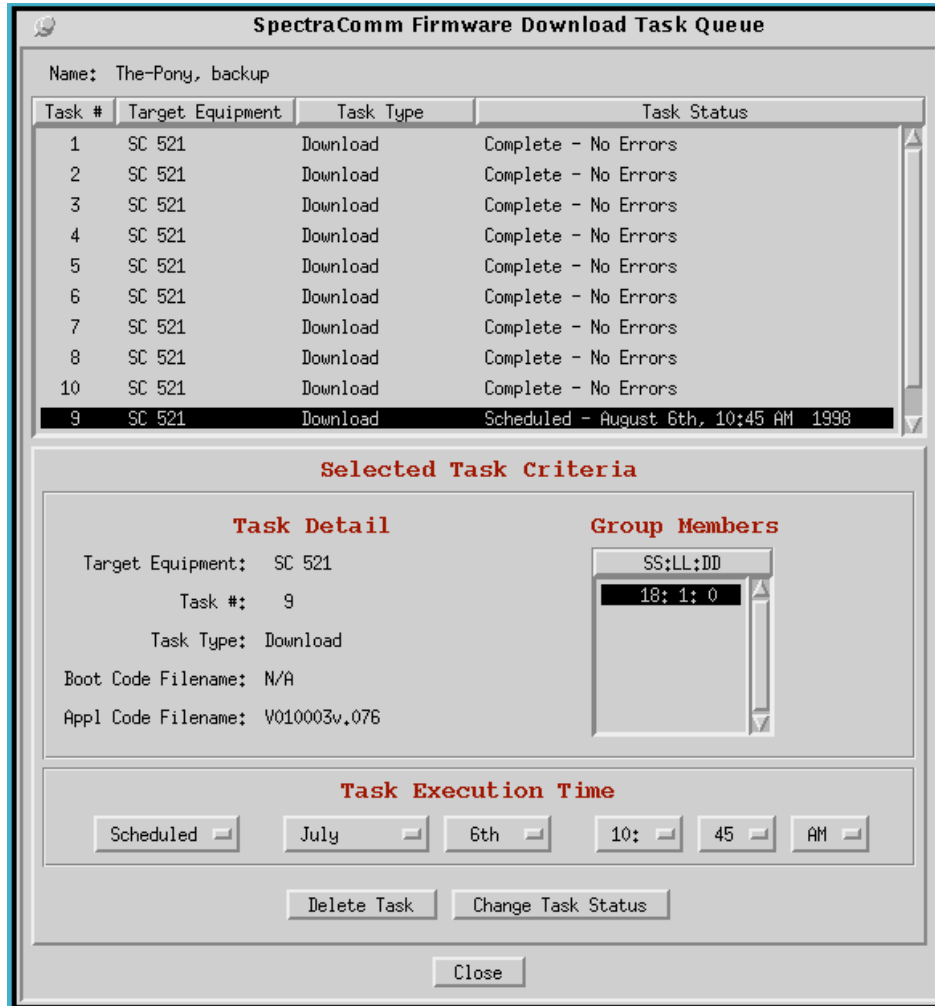
Table 6-2   Firmware Download Task Queue Window

Items	Fields	Description
Task Queue	Task #	Identifies the queued task by a task number assigned by the application
	Task Type	Identifies the queued task by the equipment type and by the task type as selected by the user during Download Setup
	Target Equipment	
	Task Status	Displays the user-defined status of the current, pending and past download or switchover tasks.
Selected Task Criteria	Task Detail	Read-only display which identifies in detail the highlighted task as listed in the Queue along with information describing the code to be downloaded.
	Group Members	Scrollable list that identifies all the individual target units for the task according to their slot:line:drop addresses.

Table 6-2   Firmware Download Task Queue Window

Items	Fields	Description
Task Execution Time	Scheduled/Queued	Selects whether the highlighted task will be scheduled for execution or returned to the queue to be scheduled at a future time.
	Month, Day, Hour, Minutes, AM/PM fields	Selects values from these fields in order to define when the task will be queued for an immediate download or switchover.
Command buttons	Delete Task	Deletes the highlighted task from the Task Queue display.
	Change Task Status	Click to put the pending task settings into effect and to update the Task Queue display.

Note   *When the status of the selected task is* **Queued***, the Selected Task Criteria functions are not available and will appear grayed-out.*

Task Status Definitions

Complete-No Errors: Task accomplished successfully.

Complete-With Errors: Task completed, but errors are detected in the new firmware.

In Progress: Task presently being performed.

Queued: Task initiated via the **Execute Now** command and waiting to execute as soon as tasks queued ahead of it are complete.

Scheduled (date/time)   Task initiated via the **Execute Later** command and scheduled for future execution via the Task Execution Time fields.

To be Scheduled: Task initiated via the **Execute Later** command and not yet scheduled via the Task Execution Time fields.

Group Configuration Application (for SC 553 DSUs only)

The Group Configuration application is launched from the Configuration menu of the Root map. Group Configuration allows the user to:

- set up a group of SC 553 units to be configured

- select the template to be used for configuring the SC553 units

- schedule when the configuration procedure is to begin

Group Guidelines

By grouping SC553 DSUs, the user can then apply a configuration template so that all units in that group will receive the same configuration. The desired configuration must be first set up using the TEAM SC553 Configuration application and stored as a template. Through the use of the stored template, the configuration can be loaded into multiple SC553 units.

- All units in the group must be the same type of device (all SC 553 DSUs).

- The TEAM SC553 application package must be installed and available at the TEAM Core workstation.

- Templates must be created in advance by the TEAM SC553 Configuration application for each group of SC553 units to be configured.

- Grouped units can be installed in multiple shelves and do not have to be located at the same site.

- By functioning from the Root map at the top of the map hierarchy, the Group Configuration application can access all compatible units in the TEAM universe.

Note   *IMPORTANT: Once launched, the Group Configuration application should be kept running in order to retain its database of group assignments. When not in use, the Group Configuration window can be reduced to an on-screen icon.*

Exiting the Group Configuration application will clear group assignments and clears accumulated status data. The next time the application is launched, new groups can be created.

Using Templates

Templates store a particular configuration for the unit options. Users can store as many templates as needed. Use the TEAM SC 553 Configuration application and save the configuration as a template on the workstation that runs the application, as described in the procedure below. For detailed instructions, consult the **TEAM SC553 Operation Manual** and associated Release Notes.

1. Access the TEAM SC553's main Configuration window. The application reads the current configuration from the selected unit when you open the main window. You can base a new configuration template on either the selected unit's current configuration or a previously stored template.

   - To create a template by editing an existing template, select **Load Template** from the File menu and select a template from the resulting list.

   - To create a template by editing the unit's current configuration, click on **Navigate** to display the application's menu of configuration windows, and select the one in which you intend to make changes.

2. Make changes as needed in the configuration window, then select and make changes in any additional configuration windows as needed.

3. When all configuration windows have been changed, select **Save to Template** from the main Configuration window File menu. A list of existing templates appears with a field for entering a new template name.

4. Select an existing template to be overwritten with the new configuration, or enter a new name to create a new template. Once a template is stored in the workstation, it is available for use with the Group Configuration application.

Group Configuration Windows

*   Main Group Configuration Window
    Provides status display of existing groups and is the access point to the application's other windows.

*   Create Group Window
    Permits naming a group, selecting its members, and assigning a Task Control status. Assigning Idle status completes the creation procedure. Assigning Schedule or Start Now status requires template selection to complete the creation procedure.

*   View/Modify Group Window
    Permits changing the membership of a group, and changing its Task Control status. Use this window to schedule or start groups that were created with Task Control status Idle, or groups that have been used before. Template selection is required each time a group's status is changed to Schedule or Start Now.

Operating instructions for the Create Group and View/Modify Group windows are the same except for the Group Name assignment function. There are additional windows for changing group names and for the display of status information.

Note   *The application transmits configuration to multiple units at a time (exact number determined by data traffic and other factors). Each iteration of the Group Configuration process requires several minutes to complete.*

Main Group Configuration Window

When you launch the Group Configuration application it displays its main window, shown below. This window allows the user to create, modify and delete groups. The user can then configure the grouped devices immediately or schedule the process at a later time. *Table 6-3* describes the menus and selections. Procedures and descriptions of subordinate screens follow the table.
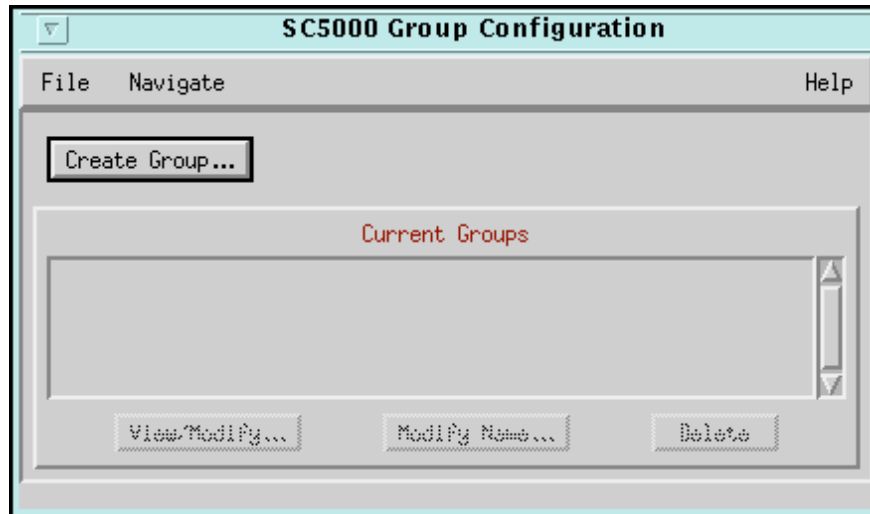
Table 6-3   Main Group Configuration Window

Selection	Description
Create Group Button	Advances to the Create Groups window.
Current Groups Field	Displays a selectable list of each existing group by name, status and the device type.
View/Modify Button	Opens a window for viewing and changing a selected group by adding/removing devices, changing the task control status or the device type.
Modify Name Button	Opens a window for changing the name of a selected group.
Delete Button	Removes the selected group.
File Menu	Select Exit to dismiss the window.
Navigate Menu	Select System Inventory to display a list of every accessible unit that could be subject to Group Configuration
	Select Group Member to display the status of devices.

Create Groups Window

At the main Group Configuration window, click the **Create Group...** button to advance to the Create Groups window. Use this window to select the individual units to be configured as a group. The Current Groups panel contains a window that lists groups that have been created and their current status. One group at a time can be selected by clicking on its selection box.
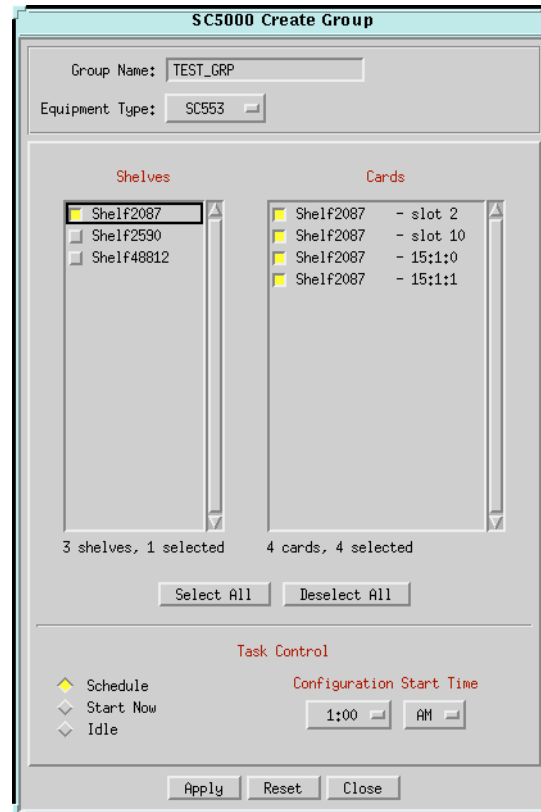

Figure 6-2   Create Group Window

Create Group Procedure

1. In the Root map, click on the TEAM universe icon to highlight it.

2. At the Configuration menu, select **Group Configuration**. The main Group Configuration window appears.

3. Click on **Create Group...** The Create Group window appears.

4. Place the cursor in the Group Name field and type an identifying name for the new group of devices. The name can be up to 24 alphanumeric characters and may include spaces and the underline character (_).

5. Click on **Equipment Type** and then select the type of device to be configured.

6. The Shelves column now displays entries for all shelves in the system that contain at least one unit of the selected type with a selection box for each shelf.

7. Click on the selection box for each shelf that contains at least one unit you intend to configure. As each shelf is selected, the Cards column displays all units of the chosen Equipment Type in the selected shelves. The individual units also have selection boxes

8. Click on unit selection boxes in the Cards column to select/deselect individual units for inclusion in the configuration group.

Note   *For convenience, use the Select All and Deselect All buttons located under the Shelves and Cards lists.*

9. When all desired units have been selected, choose one of the three Task Control states by clicking its diamond selection field:

   • Select **Start Now** to initiate the group configuration process immediately. *(Proceed to Step 11.)*

   • Select **Schedule** for the system to initiate the configuration process automatically at a time less likely to interfere with system operation (such as late at night). *(Proceed to Step 10.)*

   • Select **Idle** if you are creating the group for use at a future time. *Proceed to Step 10 to set the time of day the process will eventually initiate. Or proceed to Step 11.*

10. In the **Configuration Start Time** field, select the time at which configuration will initiate. Select AM or PM in 15-minute increments over the next 24 hours.

11. Click on the **Apply** button.

   • Groups created under **Idle** task control are now added to the Current Groups display in the main window. The group creation process is completed at this point. Use the View/ Modify function to initiate configuration of the group at later time.

   • For Groups created under **Schedule** or **Start Now** task control, the Select Template window appears, as shown below:
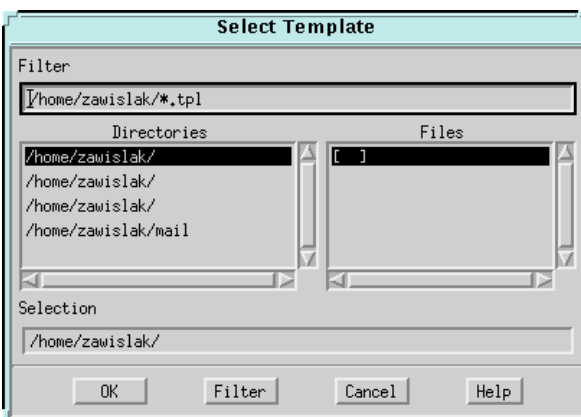
12. At the **Filter** field, specify the intended template's directory location and file name.

13. Click on the **OK** button. The newly created group is now added to the Current Groups display. For Groups created under **Start Now**, the configuration process begins in about one minute.

14. Click on the Close button to dismiss the Create Group window.

Modify Group Procedure

The View/Modify Group window allows you to change the contents of a group, schedule group configuration or start configuration of a group previously set as Idle when it was created. You can also use this window to send a new configuration to a group that was configured previously.
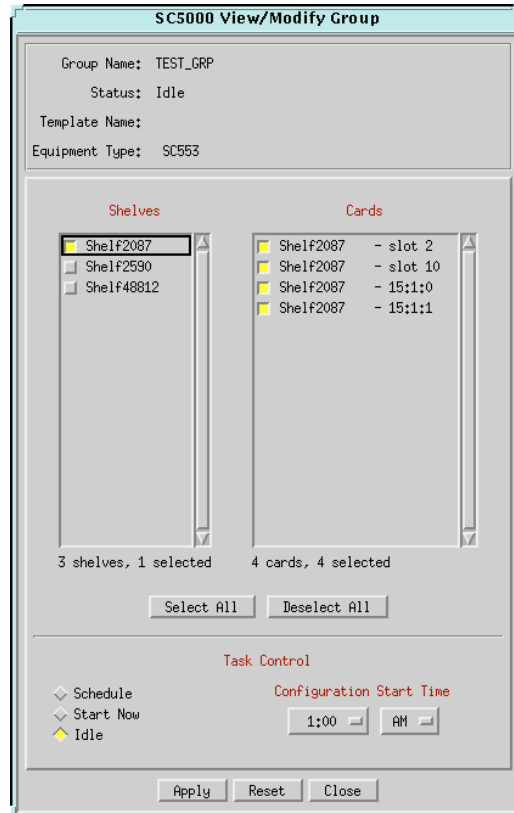
Figure 6-3   View/Modify Group Window

1. At the main Group Configuration window, click on the selection box next to a group in the Current Groups display.

2. Click on the **View/Modify...** button to display the View/Modify Group window.

Note   *Every shelf in the system that contains at least one unit of the selected type will appear in the display, re-gardless of whether any units are part of the current group. A shelf will appear grayed-out and cannot be selected if all the units of the selected type are assigned to other groups.*

3. To change the composition of the group, select or deselect shelves and individual units by clicking on their selection boxes. Use the **Select All** and **Deselect All** buttons below the Shelves and Cards lists for convenience. To perform Task Control without altering the group, go to Step 4.

Note   *When you first select a shelf, all its units of the appropriate Equipment Type appear in the Cards list, and all of those units that aren't already assigned to another group are selected. All Units that are assigned to other groups will appear grayed out and cannot be selected.*

4. Select one of three Task Control states:

   • Select **Start Now** to initiate the group configuration process immediately.
     (Proceed to Step 5.)

   • Select **Schedule** for the system to initiate the configuration process automatically at a
     time less likely to interfere with system operation (such as late at night).
     (Proceed to Step 6.)

   • Select **Idle** if you are creating the group for use at a future time.
     Proceed to Step 5 to set the time of day the process will eventually initiate.
     Or proceed to Step 6.

5. In the **Configuration Start Time** field, select the time at which configuration will
   initiate. Select AM or PM in 15-minute increments over the next 24 hours.

6. Click on the **Apply** button.

   • Groups created under **Idle** task control are now added to the Current Groups display in
     the main window. The group creation process is completed at this point. Use the View/
     Modify function to initiate configuration of the group at later time.

   • For Groups created under **Schedule** or **Start Now** task control, the Select Template
     window appears.

7. At the **Filter** field, specify the intended template's directory location and file name.

8. Click on the **OK** button. The newly created group is now added to the Current Groups display.
   For Groups created under **Start Now**, the configuration process begins in about one minute.

9. Click on the Close button to dismiss the View/Modify window.

Modify Name Procedure

The Modify Name window enables you to change the name of a previously created group.
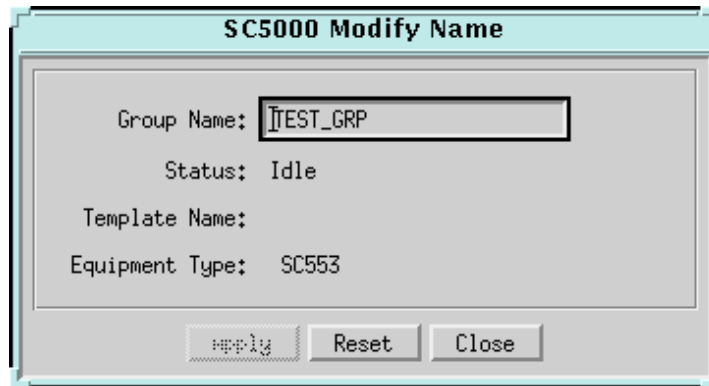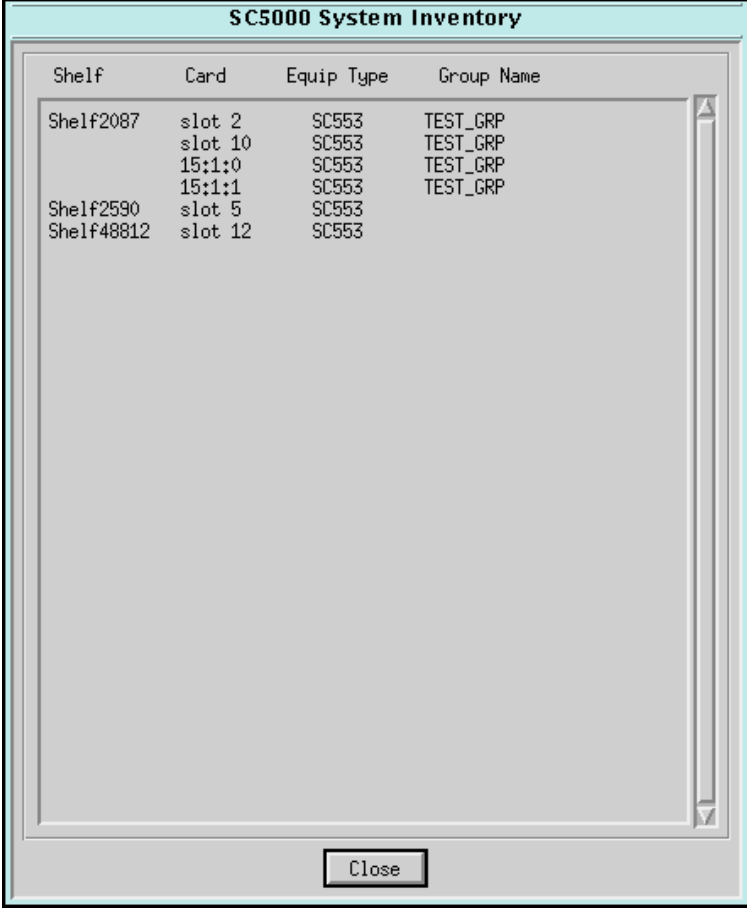
Figure 6-4   Modify Name Window

1. At the main Group Configuration window click on the selection box next to a group in the Current Groups display, then click on the **Modify Name...** button. The Modify Name window appears with an input field containing the current name of the group, and a read-only display of the group's current status, the selected template (if any) and the equipment type.

2. Position the cursor in the **Group Name** field and replace or edit the name. It can be up to 24 alphanumeric characters; spaces and the underline character (_) are permitted.

3. Click on the **Apply** button. The new group name replaces the former name in the main window Current Groups display.

4. Click the **Close** button to dismiss the Modify Name window.

System Inventory Window

The System Inventory window is accessed through the main Group Configuration Navigate menu. This read-only window lists every accessible unit that could be subject to Group Configuration. Units already included in groups are identified by their Group Names. Use the **Close** button to dismiss the window.

Figure 6-5   System Inventory Window

Group Member Status

The Group Member Status window is accessed through the main Configuration Navigate menu. Information is displayed in this window only after the Configuration Start Time for the group. No information will appear here concerning groups that have been created but not yet used.
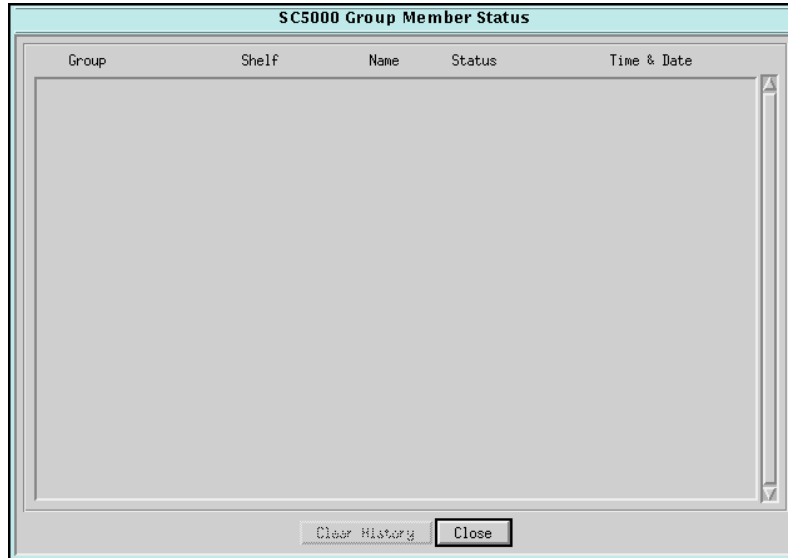
Figure 6-6   System Inventory Window

Status Line Descriptions

The display is arranged by groups, each group containing a group status line and individual lines for each card in the group. A Group status line includes the group name, latest status, and time of latest status. A Card status line includes the group name, shelf and slot identification, latest status, and time of latest status.

Table 6-4   Group and Card Status Descriptions

Conditions	Typical Line Descriptions
Group Status Conditions	Configuration Process Started.
	Configuration Process Complete.
	Configuration Process Cancelled. The process was cancelled via the View/Modify window task control function.
	Configuration Time Out. The product-specific configuration application is not responding. Cards in the group have retained their previous configuration.
Card Status Conditions	In Progress. The selected card is being configured.
	Completed. The card configuration is complete.
	SNMP Error. There is a problem communicating with the card. Card's current state is unknown.
	Incompatible. The selected template is incompatible with the card. The card retains its previous configuration.
	Lost Request. An application error has occurred. Card's current state is unknown.
	Appl Time Out. Hardware unit is not responding to product-specific application. Unit retains its previous configuration.

Line Statistics Collector (for SC 553 DSUs only)

The Line Statistics Collector application can be launched only from the Performance menu of the root map with the TEAM Universe icon highlighted. From this level of the map hierarchy, the Line Statistics Collector can be configured to retrieve data from any and all SC 533 unit in the TEAM universe.

Theory of Operation

The TEAM-controlled SC553 DSUs collect statistical information on their operations and retain up to 24 hours worth of information in seven categories:

- Errored Seconds (ES)
- Bursty Errored Seconds (BES)
- Severely Errored Seconds (SES)
- Unavailable Seconds (UAS)
- Cyclic Redundancy Checksum errors (CRC)
- Loss of Frame Counts (LFC)
- Controlled Slip Seconds (CSS)

Meanwhile, the Line Statistics Collector application polls the devices once a day on a scheduled basis to retrieve the statistical data collected. It stores the accumulated data on the TEAM workstation so that it can be output to other applications for display and use. The Line Statistics Collector application also creates and administers a group of files for each device from which it collects statistics.

Application Windows

When you launch the Line Statistics Collector application, it displays its main Line Statistics Collector window and provides access to additional subordinate windows, which are described in detail in subsequent paragraphs:

- The **Line Statistics Collector** main window sets and executes the collection processes. The window can be reduced to a desktop icon after setup. This icon will display green while all units respond successfully to polling. It will change to red if any units do not respond

- The **Session Security** window, associated with the padlock icon, is used to enable or disable session security. When the padlock icon on the main window is displayed in the locked position, the system is guarded against accidental termination of the statistics collection process.

- The **Status Log** window, associated with the status log icon, displays a record of start and completion times for each day's polling activities. The log identifies any unit that fails to respond when polled.

    - The Status Log icon is green when all units have responded to polling; thus, the log contains only start and completion times.

    - The Status Log icon is red when the log contains no response entries.

- The **Group Selection** window, associated with the **Select/View Group** button, allows the user to specify which SC553 devices statistics will be used to collect statistics.

Line Statistics Collector Main Window

The Line Statistics application first displays its main window, shown below. Use this window to configure and control the collection process. *Figure 6-7* and *Table 6-5* describe the menus, subordinate windows and selectable options for this application. Procedures follow the table.
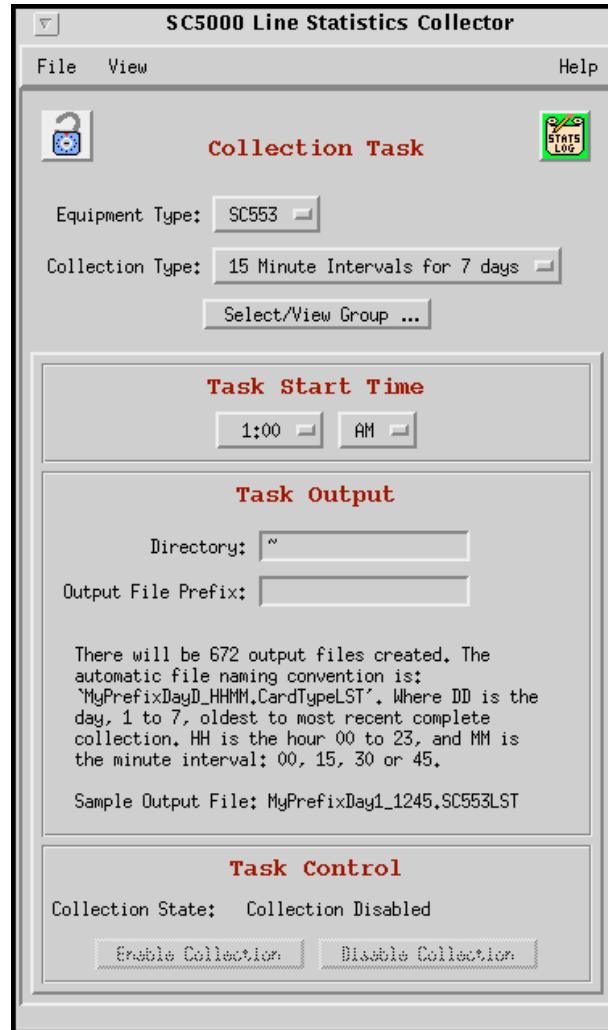
Figure 6-7   Line Statistics Collector Main Window

Note   *In the Collection State display fields, the button that corresponds to the task's current state will be grayed out.*

Note   *When the Session Security option is enabled, the padlock icon will display in the locked position. In this case, whenever a locked icon, the* **Disable Collection** *button, or an* **Exit** *menu selection is clicked, the application will prompt for a password before activating these functions. The application will not honor these commands unless the correct password is supplied.*

Note   *When all collection tasks are functioning properly the Status Log icon will display green. It turns red when any of the tasks malfunction, such as failure to respond to polling.*

Table 6-5   Line Statistics Collector Selections

Selections	Field	Description

Collection Task	Session Security icon	Advances to a popup window for controlling session security (Password activated).
		   Open padlock indicates that the session security is disabled.
		   Closed padlock indicates that session security is enabled.

	Equipment Type	Pulldown list of eligible devices (i.e., SC 553)

	Collection Type	Specifies that the application will collect and store statistics in according to one of two collection types:
		   15 Minute Intervals for 7 days
		   24 Hour Totals for 60 days

	Select View/Group button	Advances to the Group Selection Window for specifying which units will be polled for data.
Task Start Time	Hour, AM/PM	Specifies the time at which polling will start each day.
Task Output	Directory	Specifies the directory that is to hold the data files accumulated by polling.
	Output File Prefix	Specifies the beginning characters of each file name. The application will supply the remaining characters.
	Message Display	Provides a description and guidelines for created output files.
Task Control	Collection State	Read-only display of application state: Collection Enabled, Collection Disabled or Actively Collecting
	Task Control buttons	Click to Enable or Disable Collection.

Collection Types

When the user selects **15 Minute Intervals for 7 days**, the application records seven days of statistics as individual 15-minute interval counts. For each monitored device, this type of collection involves a group of 672 files (one for each interval). Thus, 48,384 bytes of storage capacity is required. Each day, the application replaces 96 files each day for each device.

When the user selects **24 Hour Totals for 60 days**, the application records 60 days of statistics as 24-hour total counts. For each monitored device, this type of collection involves a group of 60 files (one for each day). Thus, 4,320 bytes of storage capacity is required. Each day, the application replaces one file each day for each device.

Note   *You can configure the application to perform both types of collection on the same device. For both types, the oldest 24 hours of data is deleted each day when the application collects new data and when the maximum amount of data has been stored.*

Group Selection Window

The Group Selection window is accessed at the Line Statistics main window by clicking on the **Select/View Groups** button. Use this window to specify which SC553 devices will be used for polling and collecting statistics. When the application automatically adds new SC553 units to the TEAM universe, use this window to remove any units from which you do not want to collect statistics. Table 6-6 describes the Group Selection window.
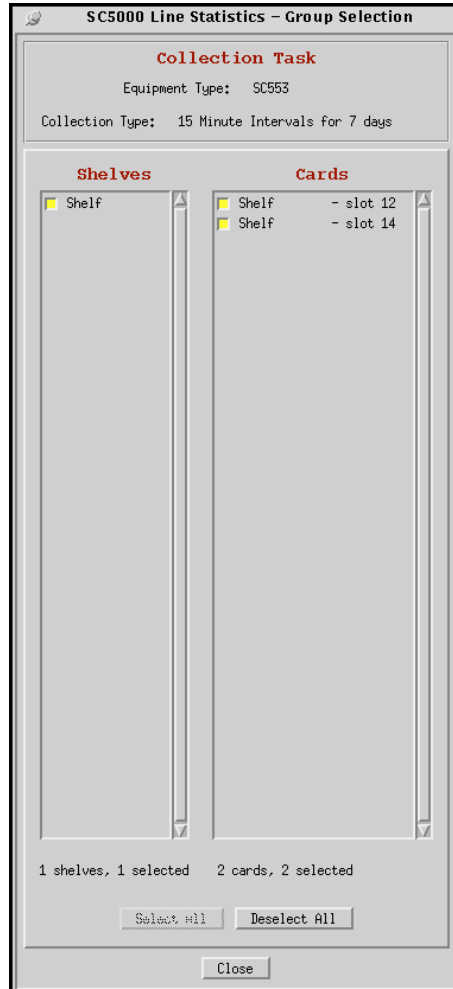
Table 6-6　Line Statistics Group Selection Window

Selections	Field	Description
Collection Task	Equipment Type	Read-only display of eligible device type (i.e., SC 553)
	Collection Type	Read-only display of selected collection type: 　15 Minute Intervals for 7 days 　24 Hour Totals for 60 days
	Shelves column	Displays a list of selectable shelves containing SC553 units.
	Cards column	Displays a list of selectable cards by slot location.
Command buttons	Select All button	Selects all cards and all shelves which contain SC553 units.
	Deselect All button	Deselects all cards and all shelves which contain SC553 units.
	Close	Activates the selections and dismisses the Group Select window.

Line Statistics Collection Setup Procedure

1. In the Root map, select the TEAM universe icon by clicking on it so that it is highlighted.

2. Select **Line Statistics Collector...** from the Performance menu. The main Line Statistics Collector window appears.

3. Click on the **Equipment Type** selection field and select the type of device from which statistics are to be collected.

4. Click on the **Collection Type** selection field and select either 15-minute intervals for seven days or 24-hour totals for 60 days. The message display changes to describe the selected Collection Type.

5. Click on the **Select/View Group** button. The Group Selection window appears, as shown in *Table 6-6*, displaying the Equipment Type and Collection Type that you are configuring.

6. In the Shelf column, click on the selection box for each shelf from which you intend to collect statistics. You can select multiple shelves. As each shelf is selected, entries appear in the Cards column for all units of the chosen Equipment Type that are present in the selected shelves. Individual units also have selection boxes.

7. In the Cards column, select the individual units from which statistics are to be collected. Use the **Select All** and **Deselect All** buttons near the bottom of the window for convenience.

8. When all selections have been made, click the **Close** button at the bottom of the window or leave the window open while you turn your attention to the main window.

9. Use the **Task Start Time** selection fields to specify the time at which collection of statistics is to take place each day.

Note   *You may want to schedule collection to occur during a period when data traffic is expected to be light, particularly if statistics are to be collected from a large number of shelves.*

10. Click in the **Directory** field to get a cursor, and type the appropriate directory path.

11. Click in the **Output File Prefix** field to get a cursor, then type a name for identifying the statistics files. The application appends each filename with information on when the statistics were collected.

12. Click on the **Enable Collection** button to activate the process. To activate the lock feature, proceed to the following paragraphs for descriptions and procedures on the Session Security Control Window.

13. IMPORTANT: Do not exit the Line Statistics Collector application after setup is complete. The application must continue to run in order to carry out its polling and collection functions. If desired, reduce the window to a desktop icon.

Application Considerations

Each file the application records contains one line of data for each polled device. The format of the data line is as follows, with commas separating the three ID items and seven statistical items that comprise each line of data:

```
Date - Time,Shelf ID,Slot Id, ES, BES,SES, UAS,CRC,LFC,CSS
```

When a poll results in an errored response or no response at all, the data line contains the value **-1** for each of the seven statistics categories, as shown in the example below:

```
Date - Time,Shelf ID,Slot Id, -1, -1, -1, -1, -1, -1,  -1
```

When a poll is successful but the polled device had not collected valid data, the data line stored by the application will be as follows:

```
Date - Time,Shelf ID,Slot Id,65535,65535,65535,65535,65535,255,0
```

Note   *The polling procedure can take as much as a minute for each device being polled. Therefore it is advisable to schedule data retrieval to occur at a time of reduced data traffic such as late at night.*

Note   *Once the Line Statistics Collection application is running, it will automatically add to the continuous collection process any compatible units from newly discovered shelves. If you do not want to collect data from these any of these automatically added units, you need to deselect them at the Group Selection window.*

Session Security Control Window

At the Line Statistics Collector main window, the padlock icon appears open while Sessions Security is disabled. Click on the icon to provide password protection for the statistics collection process. Table 6-7 describes the control window. Procedures follow the table.

```
Session Security Control Password:

[I                                          ]

      OK          Cancel        Disable Security
```

Table 6-7   Session Security Control Window

Selection	Description
Session Security Password	A data entry field for setting the security password. When Session Security is enabled, this password is required before the collection process can be terminated.
OK	Saves the entry and dismisses the Session Security control window. The icon on the Line Statistics main window changes to reflect the new security status (locked or unlocked padlock).
Cancel	Cancels the pending changes and dismisses the Session Security control window.
Disable Security	When clicked, prompts for the security control password. Incorrect passwords are ignored and security remains enabled.

Session Security Procedure

1. At the View menu, select **Session Security** or click on the small padlock icon in the upper left corner of the window. The Session Security Control window appears.

2. Type in the password you intend to use and click **OK**. The small window disappears and the icon changes to a closed padlock. In this state, when the user clicks the locked padlock or the **Disable Collection** button, or selects **Exit** or **Session Security** from a menu, the application will prompt for the password.
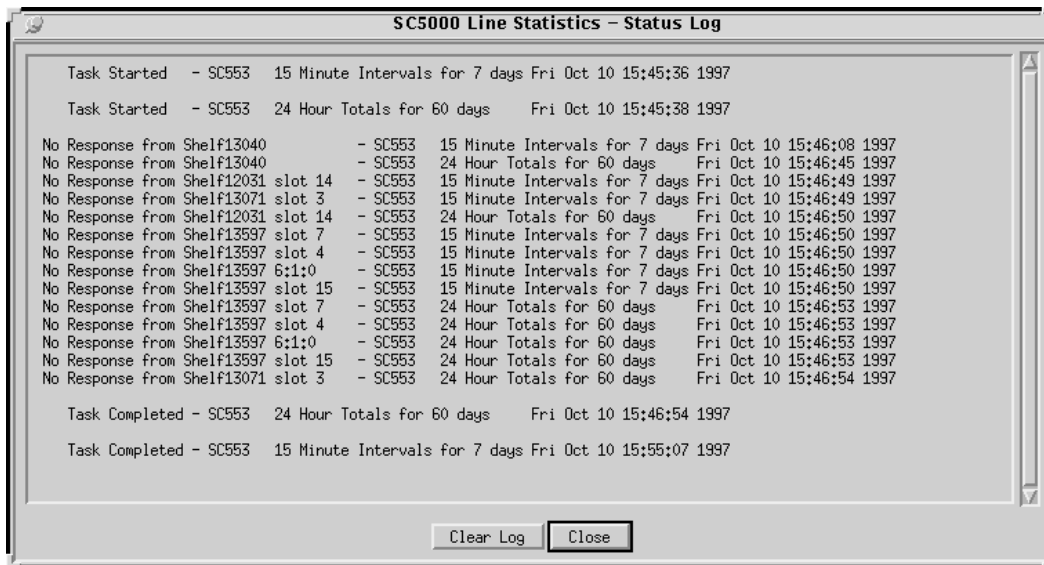
Note   *The application will not honor any of the commands described in step 2 unless the correct password is supplied.*

3. To disable Session Security, click on the locked icon or select **Session Security** from the View menu. In the popup control window, supply the password and click the **Disable Security** button.

Line Statistics Status Log

The Status Log lists all the Statistics Collection tasks that are currently running. Access the Status Log from the main window by selecting **Status Log** at the View menu or by clicking the Status Log icon. The icon is green as long as all collection tasks are functioning properly. It turns red when any of the tasks has a malfunction, such as failure to respond to polling. *Figure 6-8* illustrates a typical Line Statistics Status Log.

```
                    SC5000 Line Statistics - Status Log

   Task Started   - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:45:36 1997

   Task Started   - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:45:38 1997

No Response from Shelf13040           - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:46:08 1997
No Response from Shelf13040           - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:45 1997
No Response from Shelf12031 slot 14   - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:46:49 1997
No Response from Shelf13071 slot 3    - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:46:49 1997
No Response from Shelf12031 slot 14   - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:50 1997
No Response from Shelf13597 slot 7    - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:46:50 1997
No Response from Shelf13597 slot 4    - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:46:50 1997
No Response from Shelf13597 6:1:0     - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:46:50 1997
No Response from Shelf13597 slot 15   - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:46:50 1997
No Response from Shelf13597 slot 7    - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:53 1997
No Response from Shelf13597 slot 4    - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:53 1997
No Response from Shelf13597 6:1:0     - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:53 1997
No Response from Shelf13597 slot 15   - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:53 1997
No Response from Shelf13071 slot 3    - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:54 1997

   Task Completed - SC553   24 Hour Totals for 60 days     Fri Oct 10 15:46:54 1997

   Task Completed - SC553   15 Minute Intervals for 7 days Fri Oct 10 15:55:07 1997

                         Clear Log    Close
```

Figure 6-8   Line Statistics Status Window

Status Log Commands

- Click **Clear Log** to discard all polling and collection status messages stored on the Status Log.

- Click **Close** to dismiss the Status Log window.