TimePictra

Release 3.2

User's Guide

097-48302-32
Issue 1
June 2003

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Chapter 1

Introduction and General Information

This chapter provides information of general interest to the user.

In This Guide

This User's Guide provides complete information necessary to manage the Network Elements (NEs) that comprise a synchronization network using the TimePictra software. The following topics are included:

- Starting and stopping a Web-based or X-Windows-based user session.
- Creating and modifying the network topology, either locally on a network map, or via a Web-based interface.
- Fault management - viewing alarms and other events, performing fault analysis, acknowledging and discharging alarms, and creating formatted alarm and event reports.
- Performance management - viewing input channel performance measurements and creating formatted performance reports.
- Inventory management - creating and managing a master inventory of the hardware resources available in the network, and creating formatted inventory reports.
- Security management - managing system users, TimePictra users, and NE users, and creating management domains for users.
- Configuration management - viewing and modifying the current configuration of NEs, and creating and storing default configurations which can later be used for compare and audit purposes on NEs.
- Auto Action - associating internal and external processes such as scripts, e-mail, and command templates with internal events and conditions within the TimePictra database.
- Pass-through of TL/1 commands directly to selected NEs, and receiving and viewing of responses.
- Miscellaneous functions, such as viewing and interpreting the Activity log and creating Activity Log reports, viewing and interpreting the Transaction log, releasing locks that have been left in place by the system against NEs, performing forced alarm synchronization operations, and identifying Web users currently logged on.

Naming Conventions

This guide uses several names to refer to the same objects. The usage of multiple terms for the same object helps define the relationship between objects in different situations. To establish naming conventions, the objects and their corresponding names are listed in Table A.

Table A. Object Naming Conventions

Object	Names Used for the Object
TimePictra software	TimePictra application, TimePictra, software
HP-UX workstation	TimePictra workstation, TimePictra system, host system, element manager
Timing Signal Generator	TSG, SSU, NSU, BITS, NE, network element, network object
Primary Reference Source	PRS, PRC, GPS, NE, network element, network object

Software Description

The TimePictra software provides an easy-to-use graphical user interface (GUI) for the management of NEs that make up the synchronization network. NEs are managed via a network connection between the host system and each NE. Once this connection is established, the software can be used to modify the topology of the synchronization network and manage the configuration of the individual NEs in the network, and perform network management functions on them.

TimePictra Features

The following sections explain the feature set of the TimePictra software. The first section explains the features included in the pre-version 3.1 release of TimePictra, and subsequent sections explain the additional features and enhancements in each subsequent release of the TimePictra software.

Features - Pre-Version 3.1 Release of TimePictra

The following features are included in the pre-version 3.1 release of the TimePictra software:

- Support for the following NE types:
  - TimeHub 5500
  - Net Sync 55400/55409
  - Net Sync 55300 (fault management)
  - TimeSource 3000 (v1.04.02)
  - TimeSource 3100 (v1.04.03)
  - TimeSource 3500 (v1.04.02)

- TimeSource 3600 (v1.04.02)
- DCD 5.01.05
- DCD 5.04.02
- DCD 5.05.02
- DCD 5.05.04
- TSG 3800 (vD.04)
- TSG 3800 (vE TL1 ver G)
- PRR10 (vD)
- SSU-2000 (fault management)

- Ability to manage synchronization network consisting of up to 1500 Network Elements (NEs).
- Ability to communicate with NEs over the network using the TCP/IP, X.25, and TP4 communications protocols.
- Adherence to TNM standards
- Integration with industry standards: Oracle, HP Openview.
- Single screen graphical representation of the synchronization network topology using HP Openview Network Node Manager. Color status indicates the severity of alarms originating at nodes within the network.
- Web-based graphical user interface that can be viewed on supported platforms capable of browser based connections to the world-wide-web, with color status indicating the severity of alarms originating at nodes with the network. Web presentation is via a combination of HTML pages and Java applets. The main Web-based screen is referred to at the Launch Pad, and it is from the Launch Pad that other management activities are launched during Web sessions.
- TimePictra status propagation rules to indicate changes in status of network elements at the lower levels of the containment hierarchy. Status propagation is visible in the Openview map as well as the Launch Pad.
- Synchronization trails to allow assignment of input to output connectivity between NEs. Visual representation of sync trails is viewable via a form, and on Openview Maps directly.
- Network Element Status display, which can be used to remotely view the status of selected panel indicators from a specified NE.
- An Alarm Viewer and Event History Log, which provide sorting and filtering capability for effective ordering and displaying of current alarms and other events. Alarm and event details are available along with the ability to acknowledge and discharge current alarms.

- Fault analysis, which provides the functionality to analyze the number and type of alarms and events generated by selected NEs over a given period of time.
- Forced alarm synchronization, in which the user can selectively force the system to compare a list of active alarms from a selected NE to the alarms that are stored in the TimePictra database for that NE. The system then transfers any alarms that are in the TimePictra database but no longer active in the NE from the Alarm Viewer to the Event Log.
- Alarm auto-synchronization daemon that ensures alarms on management system, match the current alarms on the NE.
- Heartbeat task, which provides automatic, periodic checking of connectivity of the host system to all managed NEs.
- Performance Monitoring, which collects and displays performance measurement data for a variety of NE input channel measurements in either line, column, or tabular format. The performance monitor allows the display of some measurements against a selection of performance masks, as well as against previously recorded measurement data. (performance history data)
- Inventory management, which allows for the tracking of all installed hardware down to the component level. Much of the hardware is auto-discovered when the NE is first managed by the system.
- Ability to view and modify the configuration of any NE that is actively being managed by the system.
- Three different levels of user access determine the level and capability each user will be granted. Management domains add additional security while also providing organizational views for the NEs.
- Ability to download firmware code from TimePictra system to the EPROMs on the targeted NE.
- User administration of NE users as well as TimePictra users.
- Pass-through communication via TL1 commands. The pass-through screen includes command history and command prototyping capability.
- Print and report generation of alarms, events, performance data, and activity logs.
- Default templates, which may be used to compare database values against template values. Templates may be added and removed from the database.
- Direct audit of NEs to compare database values against NE values.
- Command bundles, which may be used to batch download commands to specified NEs.
- Auto Action, which allows system interaction with other applications and the end user. This powerful tool may be used to execute any command or utility

when triggered by alarms or events received from any NE.

- An Activity log, which shows all activity between TimePictra and each NE.
- A Transaction log, which shows actions taken by each TimePictra user on each NE.
- Administration utilities which provide ease of use for the administration of the TimePictra platform.

Features and Enhancements - Version 3.1

In addition to the features listed above, the following features and enhancements are included in version 3.1 of the TimePictra software:

- New Launch Pad Look and Feel - The Launch Pad now has a look and feel which provides better resolution and distinction between NEs and domains. Domains are shown as folders in the left panel of the target list area of the Launch Pad, and NEs in the selected domain are listed in the right panel. An auto-refresh function has been added for automatic, periodic refreshing of containment tree and status information as shown in the target list area.

  The Launch Pad also has improved navigation and usability features, including a menu bar, shortcut icons, and pop-up labels (tool tips). Refer to the chapter entitled *Starting and Stopping a User Session* for an explanation of the improved Launch Pad.

- Reporting and Printing of Inventory - The NE Inventory dialog box now contains a print function, which allows the creation and printing of formatted inventory reports. This report generation feature is similar in functionality to the report feature used in other TimePictra management functions.
- Standard Edition of Oracle 9i Database - TimePictra now functions with the standard edition of the Oracle 9i database.
- Incremental Patches Incorporated - Patch 001 has been incorporated into TimePictra.

Features and Enhancements - Version 3.2

In addition to the features listed above, the following features and enhancements are included in version 3.2 of the TimePictra software:

- Full management of the SSU-2000 network element.
- Enhancement to the Alarm Viewer filter.
- Performance Analyzer option support. The Performance Analyzer option captures performance data for use with TimeMonitor.
- Incremental Patches Incorporated.

General Constraints and Known Issues Addressed in Version 3.2

Note: Refer to the appendix entitled *General Constraints and Known Issues* for the current list of all general constraints and known issues.

The following general constraints and known issues for TimePictra 3.1 have been addressed and resolved in TimePictra 3.2:

- Known Issue #70 - TP documentation refers to DCD 5.04.04, but this version was not released when 3.0 was released.
- Known Issue #107 - Alarm Viewer auto-refresh is set to off by default. Have it set to 20 seconds by default
- Known Issue #110 - When selecting OUTE on the Outputs tab in the 55400 Configuration View and Configuration Modify forms, only one model number is displayed (Model no: 1=HP55482, Model no: 2=).
- Known Issue #111 - Audit operation flags differences which are not of concern to the customer. Configuration audit displays a mismatch of performance threshold setting due to decimal points being different. Shows values of “1” as being an audit difference compared to “1.00”. TimePictra should not show this as an audit flag and take care of the precision calculation.
- Known Issue #112 - Performance Table size increase to handle larger amount of data.
- Known Issue #113 - When a non-standard Output card is in slot 1 of DCD 50402, other cards might not be represented correctly in the Configuration View and Configuration Modify forms.
- Known Issue #114 - Setting Alarm Viewer filter parameters over 255 characters would cause an Oracle error. Have limited this field to remedy this issue.
- Known Issue #116 - *(SNMP option only)* Database agent daemon hard-coded path reference by SHLIB_PATH. Should point to /opt/osmf/lib. This would cause the database daemon to not start which is needed by SNMP.
- Known Issue #117 - Activity Log viewable by “User” level security. Access removed.
- Known Issue #118 - Maximum length FDN and Refresh causes crash on the Web session.
- Known Issue #119 - User which has “Root” domain as their filter do not see NEs in other domains.
- Known Issue #120 - Alarm Viewer filter for 55409 NE types does not have event types associated.

Options

The following optional products are supported for the current version of TimePictra:

SNMP Agent Interface

The SNMP agent allows the TimePictra management system to communicate via the SNMP protocol to an upper level Network Management system, to allow complete integration with network operation centers.

Resiliency

The TimePictra Resiliency option provides the ability to continually replicate Oracle databases containing telecommunications network management information, thus providing a fully functioning and up-to-date backup system (Secondary Master) that can be put into immediate service if the primary network management workstation (Primary Master) fails. The Resiliency option's database replication functions also ensure that little or no raw or processed performance, alarm, event, and configuration data is lost when the primary workstation controlling telecommunications network equipment goes off-line.

Performance Analyzer

The Performance Analyzer option is a tool that is used to collect performance data from managed network elements in TimePictra. This data can then be used with Symmetricom's TimeMonitor analyzer software. This option, in conjunction with TimeMonitor, provide an advanced synchronization measurement analysis tool.

Synchronization Planning Tool

The Synchronization Planning Tool (SPT) is a separate product that allows network planners to optimize the design of the synchronization network topology offline, that is, without using TimePictra resources. SPT analyzes the network topology by insuring that the following rules have been effectively applied: traceability to PRS, avoidance of timing loops, maintenance of hierarchy, and minimization of cascading of the timing reference.

Contact your Symmetricom sales representative for information on the SPT product.

Related Documentation

In some cases, procedures in this guide might refer you to procedures or other information contained in additional documentation, such as user or programming documentation for the NEs that are manageable by the TimePictra software.

User Classes

To control access to and protect the integrity of the system, three *user classes* are defined for the TimePictra system. A user class defines the level of capability that a user is granted when using the system. In the TimePictra system, all potential users of the system are assigned to one of three user classes: the User class (usr), the Administrator class (adm), and the Security class (sec).

Table B explains the general capabilities granted to users of each user class. The individual chapters in this guide explain in more detail exactly which tasks can be performed by users of given user classes.

Table B. Capabilities of User Classes

User Class	Capabilities (General)
User	Users in this class can start and stop their own user session, and view the network topology locally in the network map or remotely over the world-wide-web using the Launch Pad. Synchronization management information in the NE Status, Fault Analysis, Alarm Viewer, Event History Log, Performance Monitor, Inventory, Audit, Configuration Defaults, User Administration (for the user logged in only), View Configuration, Transaction Log and Activity Log dialog boxes can be viewed. Users in this class can also create and print reports.
Administrator	Users in this user class have all of the capabilities of the User class, and can manage default NE configurations, discharge alarms, modify the inventory database, modify the current configuration of NEs, perform forced alarm synchronization operations, and perform command pass-through operations.
Security	Users in this user class have all of the capabilities of the User and Administrator classes, and can modify the network topology, download firmware upgrades to NEs, manage, unmanage, add and delete NEs, TimePictra users, and configure management domains for users.

In addition, users of the User, Administrator, and Security classes (with the exception of the “secw” and “sec” users) must be granted permission on an individual network element, location, or network basis to perform the tasks that fall within their level of capability. This is the concept of management domains.

Management Domains

Before users of the User and Administrator classes can perform management activities on any synchronization network hardware, a management domain must be set up for the user. The management domain specifies which NEs a given user has permission to access. Management domains are set up and administered by the Security-class user. For more detailed information on management domains, refer to the chapter entitled Security Management in this guide.

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Chapter 2

Starting and Stopping a User Session

The procedures in this chapter explain how to set up a Web client to run a TimePictra user session, and how to start and stop a Web-based or X-Windows-based TimePictra user session.

Overview

The TimePictra software can present its network management interface in either of two ways:

- *X-Windows Environment* - The main screen when the software is used in the X-Windows environment is a synchronization network map presented by the HP OpenView Network Node Manager (NNM). All other network management activities are started from within the NNM.

- *Java-Enabled Web browser* - The main screen when the software is used in the Web-based environment is called the Launch Pad. All other network management activities are started from within the Launch Pad.

In order to begin using the software, a user must first have been created as a valid TimePictra user by a Security-class user, at which time the user is assigned to a user class, and assigned a username and password.

Note: Creation and management of TimePictra users is explained in the chapter entitled *Security Management* in this manual.

In this Chapter

The following topics are addressed in this chapter.

- System requirements for Web clients.

- Setting up Web clients.

- Starting and stopping a Web-based user session.

- Starting and stopping an X-Windows-based user session.

Web Client System Requirements

In order for a given Web client to be able to run a TimePictra user session, it must meet the minimum system requirements stated below. The procedures in the section entitled *TimePictra Client Setup* explain how to set up clients to run a TimePictra user session.

Windows NT/98/2000/XP Web Clients

The following is the recommended configuration for running a TimePictra user session on a Windows Web client:

- Pentium-class computer system with 300 MHz processor (or better)
- 16 MB of system RAM (24 MB recommended)
- 12 MB of free hard disk space (20 MB recommended)
- Netscape® Navigator/Communicator version 4.7 or higher

  OR....

- Microsoft® Internet Explorer version 5.01 or higher

  WITH THE FOLLOWING PLUG-INS....

  - Oracle JInitiator 1.3.1.6
  - Adobe Acrobat® Reader version 5.0 or higher

2

Web Client Setup

This section explains how to set up Web client systems so that they can run a TimePictra user session.

Set Up a Windows NT/98/2000/XP Web Client

Procedure A explains how to set up a Windows Web client for TimePictra user sessions.

2

Procedure A. Setting Up a Windows Web Client

Step	Action
1	Ensure that the Web browser is installed and configured on the client platform. The TimePictra client session will run within either the Netscape Navigator/Communicator or Microsoft Internet Explorer browser. Refer to *Web Client System Requirements* in this chapter for more specific information on the browser software required. • If the required version of Netscape Navigator/Communicator is not installed on the client, obtain it from Netscape Communications Corporation (`www.netscape.com`). • If the required version of Microsoft Internet Explorer is not installed on the client, obtain it from Microsoft Corporation (`www.microsoft.com`).
2	Ensure that the Acrobat Reader *version 5.0 or better* is installed as a plug-in to the browser on the client. If the required version of Acrobat Reader is not installed as a plug-in to the browser on the client, obtain it from Adobe Systems Incorporated (`www.adobe.com`).
3	Start the Web browser, then enter the following URL - the URL of the TimePictra main page - into the browser's location field: `http://`*`servername`*`:`*`port`* Where *`servername`* is the machine name of the TimePictra server and *`port`* indicates the connection for the Oracle/ TimePictra interface. The default is port 8080

Step	Action
4	Download and install the required JInitiator plug-in on the client. For example, perform the following steps to download and install the JInitiator plug-in using the Netscape Navigator/Communicator browser: a. In the TimePictra main page, click the Oracle JInitiator *x.x.x.x.x* (plugin) link. b. If a File Download dialog box appears, select the "Save this program to disk" radio button, then click OK. c. Click "Save" in the Save As... dialog box to save the JInitiator Plug-in executable to the client (for example, in the `c:\Program Files\Netscape\Communicator\Program` directory). A small information box containing a progress indicator appears on the screen during the download. When the download completes, the information box disappears. d. Open the JInitiator Plug-in executable that was just downloaded, and follow the instructions presented by the install application to install the plug-in to its chosen default directory (for example, the `c:\Program Files\Oracle\JInitiator` directory). *Note:* If you do not perform Step 4, then the first time you attempt to start TimePictra 3.2, TimePictra will detect that the latest version of the Jinitiator Plug-in is not installed, and automatically open the install application.
5	Perform the following in the order presented to choose the JInitiator as the Java Runtime Environment to use: a. Choose *Start* ⇒ *Settings* ⇒ *Control Panel* to open the Control Panel dialog box, then double-click *Jinitiator x.x.x.x* to invoke the Jinitiator Control Panel dialog box. b. Select the "Advanced" tab. c. In the drop-down list under "Java Run Time Environment," choose "JRE *x.x.x.x* in C:\Program Files\Oracle\Jinitiator *x.x.x.x*." d. Click the Apply button, then close the Jinitiator Control Panel dialog box.
6	Restart the Web browser.
7	If the Netscape Navigator/Communicator browser is being used, perform the following in the order presented to ensure that Java and JavaScript are enabled: a. In the Web Browser (Netscape), choose "Preferences..." from the "Edit" menu to invoke the Preferences dialog box. b. Click "Advanced" under "Category." c. Ensure that the "Enable Java" and "Enable JavaScript" check boxes are selected, then click "OK" to close the Preferences dialog box.

End of Procedure

Starting and Stopping Web-Based User Sessions

This section explains how to start and stop a Web-based TimePictra user session. This section also includes a description of the Launch Pad, which is the first screen presented when a Web-based TimePictra user session starts.

Start a Web-Based User Session

2

When a TimePictra user session is started via the Web, the Launch Pad appears. The *target list area* of the Launch Pad will display the domains and network elements that are contained within the user's domain. It is from the Launch Pad that all other network management activities are initiated.

Procedure B explains how to start a web-based user session.

Procedure B. Starting a Web-Based User Session

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Start the Web browser from which the TimePictra user session will be started.
2	Enter the following URL - the URL of the TimePictra main page - into the browser's location field, or select it from the browser's history list, if it is in the history. `http://servername:port` Where *servername* is the machine name of the TimePictra server. The TimePictra main page includes links to the information in the TimePictra on-line help system, and a button that is used to launch the TimePictra application. *Notes:* 1. You might wish to configure the browser with the TimePictra main page's URL as the Home Page, so that the TimePictra main page opens automatically when the browser is started. Refer to the browser's documentation for details. 2. When the following step is performed, if a "Plug-in Not Loaded" message box appears, the client likely has not yet been set up to run the TimePictra user session. Click Cancel in the "Plug-in Not Loaded" message box, then refer to the section in this chapter entitled *Web Client Setup* for information on setting up the Web client to run the TimePictra user session.

Procedure B. Starting a Web-Based User Session (cont'd)

Step	Action
3	Click the *Launch TimePictra 3.2* button that is in the TimePictra main page. After the button is clicked, the "TimePictra LaunchPad Window" and an Oracle window containing a Logon dialog box is displayed. Enter your username and password into the appropriate fields of the Logon dialog box, and click the Connect button. *Notes:* 1. The "Database" field should be left blank. 2. After the Connect button is clicked, the Launch Pad loads. The Launch Pad might not appear for some time. *Caution: Throughout the session, the browser containing the TimePictra main page and the separate "TimePictra LaunchPad Window" remain open. Minimize these display elements, or use the browser to browse material other than the TimePictra main page, but do not close either the browser or the "TimePictra LaunchPad Window." If the "TimePictra LaunchPad Window" is closed, the TimePictra user session may hang. If the browser is closed, certain TimePictra functions will not work.* *Note:* If the username or password is entered incorrectly, the Logon dialog box will reappear. After three incorrect attempts, the Logon dialog box will close and you will need to close the "TimePictra LaunchPad Window," then click the *Launch TimePictra 3.2* button again to continue. If the logon is successful, the Launch Pad appears (an explanation of the Launch Pad is provided in a subsequent section of this chapter). View the containment hierarchy within the domains, and begin performing network management activities using the software. Table C indicates the chapters in this manual where specific management activity information can be found.

End of Procedure

Table C is referenced from Procedure B.

Table C. Web-Based Management Activities

Launch Pad Menus / Icons	Management Activity	Chapter
Faults	Alarm and event management (including Event History Log), fault analysis, network element status.	Chapter 6- Fault Management
Config	Viewing and modifying the current configuration of NEs, firmware downloads, Sync Trails.	Chapter 10- Configuration Management
Perf	Performance monitoring.	Chapter 7- Performance Management

Table C. Web-Based Management Activities (cont'd)

Launch Pad Menus / Icons	Management Activity	Chapter
Security	NE and system user administration, management domains.	Chapter 9- Security Management
Defaults *(no associated icons)*	Audits, command template and configuration default creation and management.	Chapter 11- Defaults Management
AutoAction *(no associated icons)*	Auto action creation and association.	Chapter 12- Auto Action
PassThru	Passing through TL/1 commands to NEs.	Chapter 13- Command Pass-Through
Admin	Adding and deleting sub-networks and NEs from the network topology, managing and unmanaging NEs.	Chapter 4 - Network Topology - The Launch Pad Chapter 5 - Network Topology - over Openview Synchronization Map and Launch Pad
Inventory	Inventory database management.	Chapter 8- Inventory Management
Misc	Revealing the user currently logged on, viewing the activity log, releasing NE locks, forced alarm synchronization, transaction logging.	Chapter 14 - Miscellaneous Functions

Stop a Web-Based User Session

Use Procedure C to stop a Web-based TimePictra user session in order to ensure that user data is preserved.

Procedure C. Stopping a Web-Based User Session

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Close any opened dialog boxes other than the Launch Pad that are related to the TimePictra user session, ensuring that any unsaved data is applied as is appropriate.
2	After all other dialog boxes are closed, click the Close shortcut icon ( ) in the Launch Pad, or choose Close from the File menu. When the Close icon is clicked, a confirmation box appears containing the following question. `Are you sure you want to exit from TimePictra?`
3	Click the Yes button in the confirmation box to end the TimePictra user session.
4	Close the "TimePictra LaunchPad Window" and browser, if desired.
End of Procedure	

2

The Launch Pad

The Launch Pad is the first screen presented when a Web-based TimePictra user session is started, and it is from the Launch Pad that all other Web-based network management activities are started. Figure 1 and Table D briefly explain the Launch Pad, and Table E describes the action associated with each menu/icon selection in the Launch Pad.

Figure 1: The Launch Pad

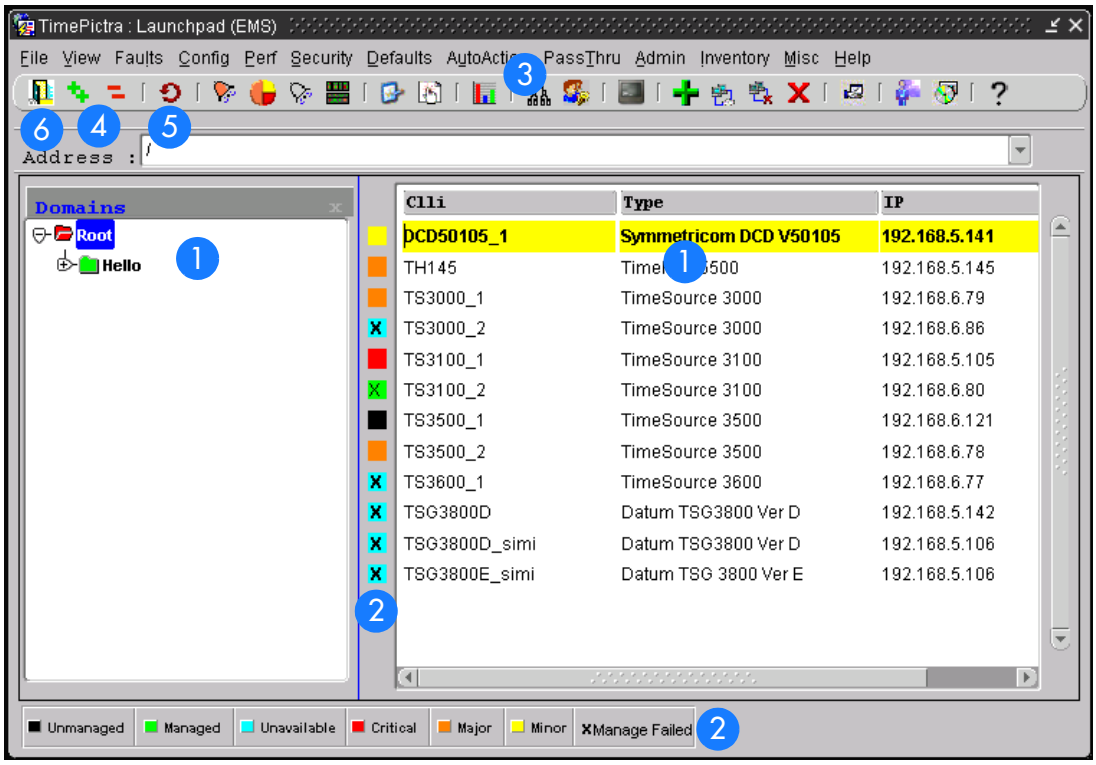


Table D. Launch Pad Description

Item	Description
1	This area of the Launch Pad, which is comprised of two panels, is referred to as the *target list*. The left panel displays a containment hierarchy of domains (sub-networks) being managed by TimePictra, and the right panel displays the network elements contained within the domain folder that is selected in the left panel. This hierarchical representation of sub-networks and the network elements within them is known as the *containment tree*. The default "Root" domain is at the top of the containment tree, and all other sub-networks and network elements are contained within it. *Note:* The displayed list may vary from one user to another, depending on the number of objects in the user's management domain.

Table D. Launch Pad Description (cont'd)

Item	Description
2	The color-coded square to the left of each network element shown in the right panel of the target list indicates the current severity status of that entity. Additionally, the color of each folder in the left panel of the target list shows the current severity status of that entity. The significance of each color is shown in the legend that appears below the target list, and is explained in the chapter entitled *Network Topology - The Launch Pad*.
3	The menu toolbar contains menus (File, View, Faults, Config, Perf, Security, Defaults, AutoAction, PassThru, Admin, Inventory, Misc, and Help) that are used to initiate network management-related and other TimePictra functions. The shortcut icons, which appear below the menu toolbar, provide single-click shortcuts to some of the common network management-related functions. Table E explains the actions associated with the various sub-menu choices and shortcut icons in the Launch Pad. *Note:* The menu selections and shortcut icons that are active in a given user session depends on the user's login level (user level) as well as the target list item (sub-network or NE) that is selected. Menus, sub-menu items, and shortcut icons will be active only if the user's login level grants permission to the user to access the associated functions.
4	The Expand and Collapse shortcut icons ( ) expand or collapse the domain folder that is selected in the left panel of the target list. Double-clicking on the Root or sub-network folders in the target list is an alternative method of expanding and collapsing portions of the tree, as is selecting a folder and choosing Expand or Collapse from the View menu.
5	Changes made by other users to the network topology - as when network elements are added to or deleted from the network topology by other users - are not automatically updated in the Launch Pad. The Refresh shortcut icon ( ) must be clicked to retrieve the latest updates to the network topology, and update the target list area accordingly. Clicking the Refresh icon also retrieves and updates the color-coded status of the target list area. Choosing Refresh from the View menu is an alternative method of updating the target list area. In addition to the manual method of updating the target list area, TimePictra contains an auto-refresh function which automatically updates the target list area at a selectable, pre-determined rate. The auto-refresh function can be accessed by choosing Auto Refresh... from the View menu. *Note:* If there is a large number of network elements in the topology, a delay will likely occur each time the target list area updates.
6	Clicking the Close shortcut icon ( ) closes all open TimePictra dialog boxes and terminates the Web-based TimePictra user session. *Notes:* 1. A confirmation box appears before the user session actually terminates. 2. If a problem occurs with the server, a message box might appear indicating that a network error occurred. In this case, the Launch Pad can only be closed by closing all browser windows. The Windows Task Manager or similar utility might be needed to close the browser windows.

Table E describes the action associated with each menu/icon selection in the Launch Pad.

Notes:

1. The names of the shortcut icons are the same as the associated menu item text. For example, the icon is referred to throughout this manual as the Alarm Viewer... icon.
2. In some situations where clicking a shortcut icon or choosing a menu item results in an action other than invoking a dialog box, a confirmation box might appear first before the action takes place.

2

Table E. Launch Pad Menu Actions

Main Menu	Menu Item	Associated Shortcut Icon	Action
File	NE Details...	*None*	Invokes the NE Details dialog box.
	Close		Terminates the TimePictra user session.
View	Expand		Expands the domain folder that is selected in the left panel of the Launch Pad target list.
	Collapse		Collapses the domain folder that is selected in the left panel of the Launch Pad target list.
	Refresh		Retrieves the latest updates to the network topology and the latest status of the network elements, and updates the target list area accordingly.
	Auto Refresh...	*None*	Invokes the Auto Refresh dialog box.
	Search	*None*	Invokes the Search Results dialog box.
Faults	Alarm Viewer...		Invokes the Alarm Viewer dialog box.
	Fault Analysis...		Invokes the Fault Analysis dialog box.
	Event History Log...		Invokes the Event History Log dialog box.
	NE Status...		Invokes the Network Element Status dialog box.
Config	Modify Configuration...		Invokes the Modify Configuration dialog box.
	View Configuration...		Invokes the View Configuration dialog box.
	Sync Trails...	*None*	Invokes the Sync Trail dialog box.
	Firmware Download...	*None*	Invokes the Firmware Download dialog box.
Perf	Performance Monitor...		Invokes the Performance Monitor dialog box.

Table E. Launch Pad Menu Actions (cont'd)

Main Menu	Menu Item	Associated Shortcut Icon	Action
Security	NE User Admin...	*None*	Invokes the NE User Administration dialog box.
	Management Domain...		Invokes the Management Domains dialog box.
	User Admin...		Invokes the User Administration dialog box.
Defaults	Audit...	*None*	Invokes the Direct Audit dialog box.
	Command Template...	*None*	Invokes the TL1 Command Template dialog box.
	Config Defaults...	*None*	Invokes the Configuration Defaults dialog box.
AutoAction	Actions...	*None*	Invokes the Actions dialog box.
	Associations...	*None*	Invokes the Associations dialog box.
PassThru	Pass Thru...		Invokes the Pass-Thru Interface dialog box.
Admin	Sub-Network Mgmt...	*None*	Invokes the Sub-Network Management dialog box.
	Add NE...		Invokes the Add Network Element dialog box.
	Manage NE...		Invokes the Manage Network Element dialog box.
	Unmanage NE...		Unmanages the selected network element.
	Delete NE...		Deletes the selected network element.
Inventory	Inventory...		Invokes the NE Inventory dialog box.
Misc	Show User...		Shows the user currently logged on.
	Activity Log...		Invokes the Activity Log dialog box.
	Force Unlock NE	*None*	Releases the lock that is in place against the selected network element.
	Forced Alarm Sync	*None*	Performs a forced alarm synchronization operation on the selected network element.
	Transaction Log...	*None*	Invokes the Transaction Log dialog box.
Help	About e-Launchpad		Displays information about the TimePictra application.

Starting and Stopping X-Windows-Based User Sessions

This section explains how to start and stop an X-Windows-based TimePictra user session.

Start an X-Windows-Based User Session

2

When a TimePictra user session is started in the X-Windows environment, the HP OpenView Network Node Manager is started, and a synchronization network map appears. The synchronization network map will display the network elements and sub-map containers that are at the Root map level. It is from the NNM that all other network management activities are initiated.

Procedure D explains how to start an X-windows-based user session.

Procedure D. Starting an X-Windows-Based User Session

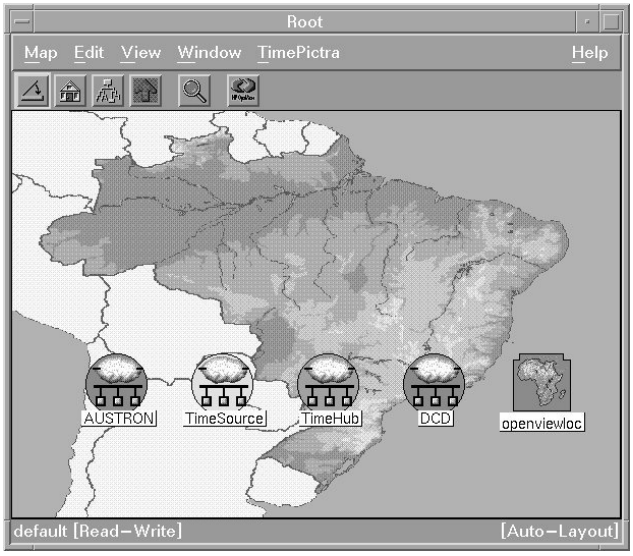
Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Log into the TimePictra system as either a Security, Administrator, or User class user, and enter the appropriate password. The user's group (attached to the User at the time of its creation on TimePictra), either `sec` (Security), `adm` (Administrator), or `usr` (User), will determine the level of capability that the user is granted when using the system. The section entitled User Classes in Chapter 1 of this manual explains in more detail exactly which tasks can be performed by users of given user classes. *Notes:* 1. Prior to logging in, the user needs to be created with the same name on the system. Refer to the section entitled TimePictra User Administration in the Security Management chapter of this manual for more information. 2. If certain other applications, such as Netscape, are running using the default color map before HP OpenView is started, conflicts can occur with HP OpenView, causing unpredictable color problems in the display. If color map conflicts are occurring, one or more messages similar to the following will be displayed after logging in. `ovw: Xt Warning: Cannot allocate colormap entry for "#xxxxxx"` where `xxxxxx` is a hexadecimal number. If these messages occur, either quit the other applications, or re-launch the applications (for example, Netscape) using a private (non-default) color map.

Procedure D. Starting an X-Windows-Based User Session (cont'd)

Step	Action
2	The user profile should include the following line to source the TimePictra environment: `. /opt/osmf/config/env/osmf-http.env` If the user profile has not been set up, enter the following command at the system prompt to source the correct environment: `. /opt/osmf/config/env/osmf-http.env`
3	Enter the following command to correctly set the DISPLAY variable. `export DISPLAY=hostname:0` Where `hostname` is the hostname of the TimePictra workstation, or the x-terminal from where the software session is to be started.

2

Procedure D. Starting an X-Windows-Based User Session (cont'd)

Step	Action
4	Enter the following command to start the TimePictra operator session. `tpstart` *Note:* Do not use the command `/opt/OV/bin/ovw` to start HP Openview windows. When the TimePictra session starts, the main `Root` map will be displayed on the monitor, as shown in the following figure.  *Note:* When the map first appears, its menus, etc., will not be synchronized. Do not begin using the software until after synchronization is complete. Synchronization is complete after the word "Synchronizing" disappears in the status area at the bottom of the map window, for example: `default [Read-Write] [Synchronizing]` For the sec-class user. or... `default [Read-Only] [Synchronizing]` For other user classes. then `[Synchronizing]` disappears.

End of Procedure

Note: **Openview Maps show all the objects created, irrespective of their assignment to a User using Domain Administration. Although a User can see all the objects on his map, he will be unable to carry out any operation on an object if it has not been assigned to him.**

Stop an X-Windows-Based User Session

Procedure E explains how to stop an X-Windows-Based TimePictra User Session.

Procedure E. Stopping an X-Windows-Based User Session

Step	Action
Caution: Failure to correctly end the user session might result in corruption of system data or data loss.	
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	In the main operator session screen, click Exit from the Map menu, then click OK in the `OpenView Windows Warning` box when it appears. After the TimePictra operator session ends, the operator session screens disappear.
	End of Procedure

2

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Network Topology - Synchronization Maps

Chapter 3

This chapter provides information on Openview Synchronization Sub-Map Creation.

Overview

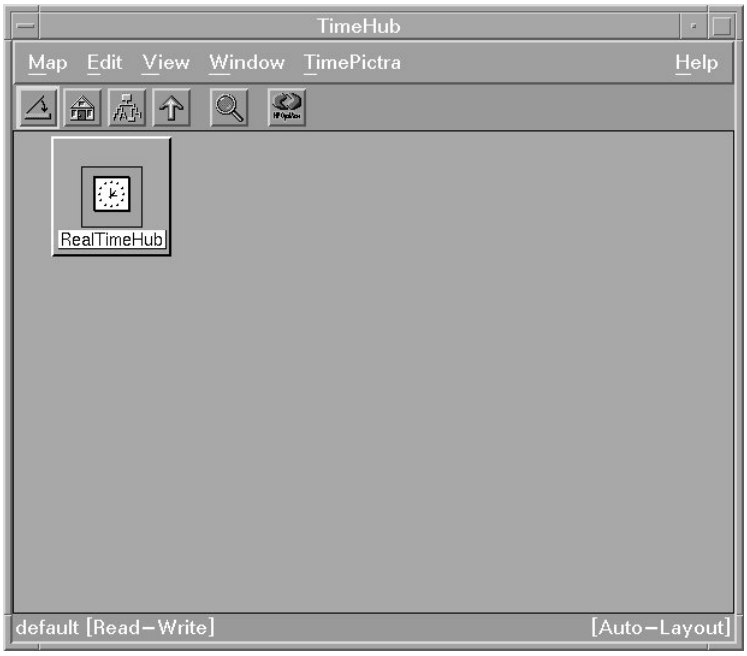
Note: Synchronization maps are not available for Web-based user sessions. In Web-based user sessions, network topology is represented in terms of the Containment Tree in the target list area of the Launch Pad. Refer to the chapter entitled Starting and Stopping a User Session for a description of the Launch Pad.

The TimePictra software integrates Symmetricom synchronization management applications with HP OpenView (OV) to provide a visual representation of the topology of the synchronization network. The topology is represented by OV as a synchronization map, which can consist of one or more sub-maps. There can be up to four layers of sub-maps, each representing an arbitrary portion of the synchronization network.

As an example, the upper-level synchronization map might be representative of the entire network of Network Element hardware supporting a telecommunications network, with each sub-map representing the hardware providing service in a given geographical region. An example of a synchronization sub-map is shown in Figure 2.

3

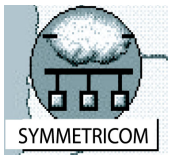
Figure 2. Synchronization Sub-Map



Synchronization maps and sub-maps are built using various symbols to represent elements of the network, as seen in Figure 2.

Synchronization Map Symbology

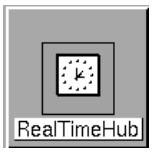
The software uses several basic types of symbols to represent the network topology.



At the highest level, a synchronization map or sub-map is represented in the OV display as a parent symbol, or container. Containers can be of several types; a representative symbol is shown on the left. Double clicking on the container symbol for a map or sub-map explodes it into the sub-map, which might consist of child container symbols which themselves represent sub-maps, and network element symbols representing actual synchronization hardware.

The following shows a typical containment hierarchy:

Network→Location→NE



This symbol is used in a sub-map to represent a Network Element (NE). The color of this symbol will vary to represent its current management status or the severity level of the most urgent alarm currently present on the NE it represents. Refer to Status Representation, below.

When first added to the map, the symbol will be labeled to indicate the type of Network Element it represents. Once the symbol has been assigned a name, the name will replace the NE type label.

The ghost symbol is used when a copy of an NE symbol is desired, as on a different submap. The color of the ghost symbol will reflect the color of the symbol it represents (also referred to as the host symbol).

When first added to the map, the symbol will be labeled to indicate the type of Network Element it represents. Once the symbol has been assigned a name, the name will replace the NE type label.

Status Representation

The color of the various map symbols will change to reflect changes in status within the network. The following sections explain how the status of NE symbols and sub-networks is represented.

NE Symbol Status Representation

The color of NE symbols change to indicate the current management status of the hardware they represent, or the severity level of the most urgent alarm currently present on the hardware. Table F shows the status represented by the color of the symbols.

3

Table F. NE Symbol Status Representation

Color	Status
Red	At least one critical alarm is active for the represented NE. Major and minor alarms might also be active.
Orange	At least one major alarm is active for the represented NE. Minor alarms might also be active.
Yellow	At least one minor alarm is active for the represented NE.
Green	No alarms are active for the represented NE.
Tan (Off-White)	The software is not currently managing the NE represented by this symbol.
Blue	The software is managing but is currently not able to communicate with the NE represented by this symbol.
REMANAGE	If the Manage operation on an NE fails, this text is displayed on the NE symbol, indicating that the NE requires remanagement. This is a warning, and some of the forms might fail to display for the NE if the problem is not corrected.

3

Sub-Network Status Representation

When the status of network elements at the lower levels of the containment hierarchy change, their status is propagated up to the sub-networks in which they are contained, and ultimately up to the Root domain. As the status is propagated upward through the containment hierarchy, the color of the symbols in the map change to indicate the change in status. Table G shows this status representation.

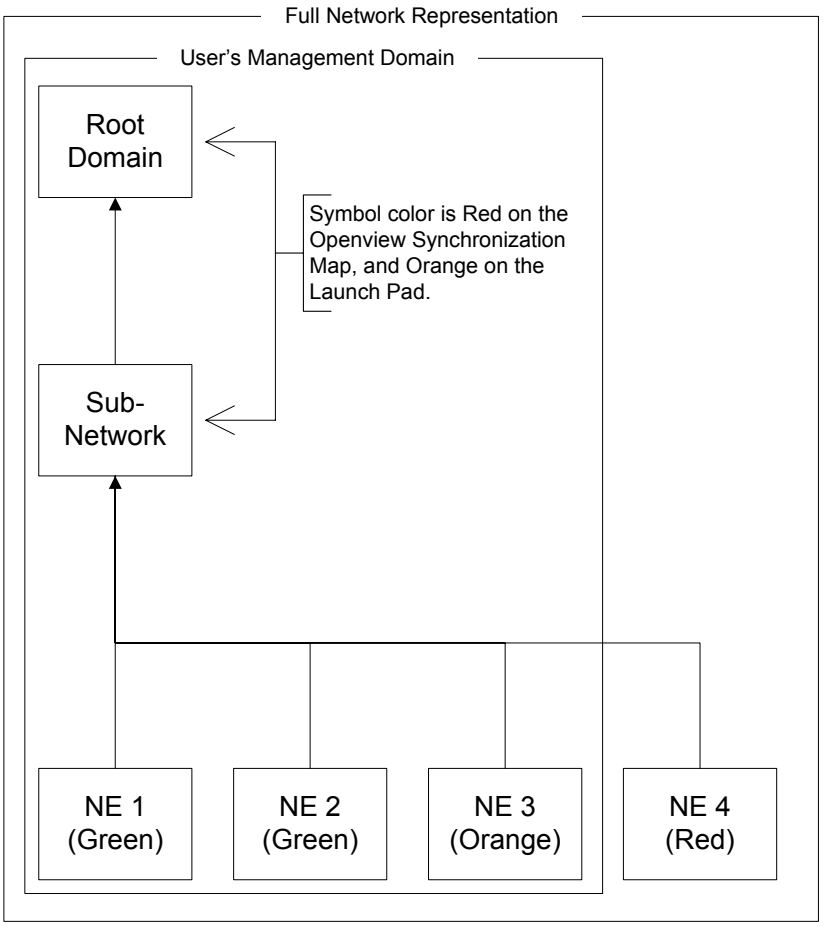
Table G. Sub-Network Status Representation

Color	Status
Red	*Critical* - at least one critical alarm is active in one or more network elements within the sub-network. This status is propagated up to the Root domain. Major and minor alarms might also be active within the sub-network.
Orange	*Major* - at least one major alarm is active in one or more network elements within the sub-network, and no critical alarms are active in the network elements within the sub-network. This status is propagated up to the Root domain. Minor alarms might also be active within the sub-network.
Yellow	*Minor* - at least one minor alarm is active in one or more network elements within the sub-network, and no critical or major alarms are active in the network elements within the sub-network. This status is propagated up to the Root domain.
Green	*Normal* - all network elements within the sub-network are managed, and no alarms are active in any of the network elements within the sub-network. If the Root domain is showing a status of normal, no alarms are active in the network represented in the containment tree.

Notes:

1. Root domain and sub-network status takes into account alarms not only from NEs, but non-NE alarms also. For example, if one NE in a sub-network is not available while all other NEs in the sub-network have no outstanding alarms, the non-NE alarm "SE_NENA" ("network element not available") is still logged to the database. This non-NE alarm has a severity of critical, which is propagated to the sub-network, and the sub-network symbol will have a color-code of red.
2. In an X-Windows-based user session, the status propagation shown in the Openview Synchronization Map takes into account all NEs and sub-networks in the map. This is different from the status propagation shown in a Web-based user session, where the status propagation shown in the Launch Pad takes into account only those NEs and sub-networks that are included in the user's management domain. Figure 3 illustrates this:

Figure 3. Status Propagation



3

Topology Updates in OVW Sessions

Only the Security-class user has a Read-Write map. If any topology changes are made on the sec session map, other system users will not see the changes until their maps are refreshed (by choosing the Refresh menu item in the Map menu).

In This Chapter

The remainder of this chapter consists of the following section.

Synchronization Sub-Map Creation

The procedures in this section explain how to create Openview network topology sub-maps, and then add symbols to the maps that represent the network elements that comprise the network.

Notes:

1. This chapter includes certain procedures that can only be performed in the Openview Synchronization Map. With the exception of the procedure that creates a “ghost” symbol, all of the procedures in this chapter have a separate, but equivalent, procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad. Those procedures can be used interchangeably with the equivalent procedures in this chapter.
2. Once the symbols representing network elements are added to the sub-maps, the security-class user must manage them before the software will interact with them. Procedures in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad explain how to manage, unmanage, and remanage the network elements represented by the symbols on the maps.

Synchronization Sub-Map Creation

The software represents the network topology as one or more synchronization sub-maps which represent an arbitrary portion of the synchronization network. The basic steps involved in creating these sub-maps are as follows:

- One or more empty sub-maps are created. These empty sub-maps typically represent arbitrary, manageable portions of the network, such as geographic regions.
- Network element symbols are added to the sub-maps, as necessary.

The procedures in this section explain these operations in detail.

Note: Once the network topology maps are created, the software must actively manage the network hardware before network management can take place. Management procedures are included in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad.

Create a Network Object (Container) and Empty Sub-Map

When an operator session is started, the OVW Root map is displayed. this root map will contain any sub-map container symbols (network objects) already created. Procedure F explains how to create a new container symbol, then explode it into an empty sub-map.

Notes:

1. Sub-maps can be created up to four layers deep in TimePictra.
2. When you are creating sub-maps, you might want to adhere to a suggested containment hierarchy. A typical containment hierarchy is: Network→Location→NE.

Procedure F. Create a Network Object (Container) and Empty Sub-Map

Step	Action
Notes: 1. Users of the Security class can perform this procedure. 2. Empty submaps can be created from the synchronization map either using this procedure, or the equivalent procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad. When creating an empty submap using the Launch Pad, only the procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad can be used.	
1	Click the Add Object menu item from the Edit menu in order to invoke the Add Object Palette dialog box.
2	Click on the appropriate symbol class (TP Network or TP Location) from the palette of symbol classes in the upper portion of the dialog box. When the symbol class is chosen, the palette of available symbol subclasses for that class appears in the lower portion of the dialog box. For example, if the TP Location symbol class is clicked, the palette of available TP Location symbol subclasses appears in the lower portion of the dialog box.
3	Using the middle mouse button, drag the appropriate subclass symbol onto the opened map and release it in the desired position. This will be the container symbol for the sub-map. When the symbol is released, the Add Object dialog box appears.
4	Enter the desired name for the sub-map into the Label field of the Add Object dialog box. The length of the Sub-Map name is limited to 45 characters.

Procedure F. Create a Network Object (Container) and Empty Sub-Map (cont'd)

Step	Action
5	Click on the Selection Name field and enter the name of the selection name if it is different from the label. *Notes:* 1. The selection name/label will not allow single quotes ('), dollar signs ($), exclamation points (!), or spaces. If the label and selection name are to be the same, then the label also must not include these characters. It is suggested that only alphanumeric characters, the underscore (_) and dash (-) be used. 2. Ensure that the selection name used is unique within the network topology. If it is not, a warning box will appear. If the warning box appears, cancel the operation and select another, unique selection name. 3. The length of the selection name field is limited to 45 characters.
6	Enter comments (if any) into the Comments field of the Add Object dialog box.
7	Click OK to close the Add Object dialog box. When the Add Object dialog box closes, the Select Layout_popup dialog box appears. *Caution: Never change the selection name in the Map→Submap→Describe/Modify menu once the object has been created as this can cause functional problems with the software. Also, never change the behavior of the container symbol from the way in which it had been configured (explodable or executable) as this can cause functional problems with the software. For Network and Location symbols, the behavior is set to explodable.*
8	Choose the appropriate sub-map layout option in the Select Layout_popup dialog box, then click OK: The layout option selected affects how NE and child sub-map symbols can be arranged within the sub-map window in the Openview display.
9	Close the Add Object Palette dialog box.
10	Double click on the newly-created container symbol. The sub-map will be empty at this point. The network topology can now be built in this window. *Note:* If the sub-map creation operation was successful, the color of the container symbol will be green. A symbol that is valid within the TimePictra system has its isNetwork or isLocation capability field set to True. If the container symbol is invalid, select another symbol sub-class for which the isNetwork or isLocation capability field is set to True. All TP Location sub-class symbols are valid, and many of the TP Network sub-class symbols are valid.

End of Procedure

Note: **A security class user is allowed to add NEs or Domains to Locations not currently in his or her Management Domain. But the user is not allowed to do any kind of operation on it, until the user specifically adds this newly created object to his or her Management Domain. A Web session user will be able to see the added object after refreshing the screen if the NE is created under a submap already assigned to**

his or her Management Domain. Otherwise, the NE needs to be added to his or her Management Domain.

Add a Network Element Symbol to the Map

Procedure G adds a labeled NE symbol to the synchronization map. At the completion of this procedure, the NE symbol will be tan in color, indicating that it is in the unmanaged state. This indicates that the software is not managing the NE represented by the symbol. In order to manage the NE, refer to the pertinent procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad.

Procedure G. Add a Network Element Symbol to the Map

Step	Action
Notes: 1. Users of the Security class can perform this procedure. 2. Network element symbols can be added to the synchronization map either using this procedure, or the equivalent procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad. When adding network element symbols using the Launch Pad, however, only the procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad can be used.	
1	In the sub-map window where the NE symbol is to be added, click the Add Object menu item from the Edit menu to invoke the Add Object Palette dialog box.
2	Click on the TP NE icon from the palette of symbol classes in the dialog box. Symbol classes are in the upper portion of the dialog box. When the symbol class is clicked, the palette of available symbol subclasses appears in lower portion of the dialog box.
3	Using the middle mouse button, drag the appropriate subclass symbol onto the map and release it in the desired position. *Notes:* 1. The subclass symbols at this point are labeled according to the NE type that they represent. Ensure that the correct symbol is chosen. 2. The correct subclass symbols to drag have a white background. Do not drag the symbols that have a black background. When the symbol is released, the Add Object dialog box appears. The symbol color at this time is dark blue.
4	Enter the desired name for the NE symbol into the Label field of the Add Object dialog box. The length of the NE name is limited to 25 characters.

3

Procedure G. Add a Network Element Symbol to the Map (cont'd)

Step	Action
5	Click on the Selection Name field and enter the selection name if it is different from the label. *Notes:* 1. The selection name must not include single quotes ('), dollar signs ($), exclamation points (!), or spaces. If the label and selection name are to be the same, then the label also must not include these characters. It is suggested that only alphanumeric characters, the underscore (_) and dash (-) be used. 2. Ensure that the selection name used is unique within the network topology. If it is not, a warning box will appear. If the warning box appears, cancel the operation and select another, unique selection name. 3. The length of selection name cannot be more than 25 characters.
6	Enter comments (if any) into the Comments field of the Add Object dialog box.
7	Click OK to close the Add Object dialog box. The NE symbol will now be labeled with the name entered in the Label field in the above step, and its background color will change from blue to tan (off-white), indicating that it is now in the unmanaged state. *Caution: Never change the behavior of any symbol from the way in which it has been configured (explodable or executable) as this can cause functional problems with the software. For NE symbols, the behavior is set to executable. Also, never change the selection name. In order to modify the selection name, delete and then add the object with the new selection name.*
8	Close the Add Object Palette dialog box.

End of Procedure

Note: **A security class user is allowed to add NEs or Domains to Locations not currently in his or her Management Domain. But the user is not allowed to do any kind of operation on it, until the user specifically adds this newly created object to his or her Management Domain. A Web session user will be able to see the added object after refreshing the screen if the NE is created under a submap already assigned to his or her Management Domain. Otherwise, the NE needs to be added to his or her Management Domain.**

Add a Ghost Network Element Symbol to the Map

A ghost symbol is used when a copy of an NE host symbol is desired, as on another submap (the host symbol is the original symbol created to represent the NE). The color of the ghost symbol will reflect the color of the host NE symbol it represents.

Procedure H explains how to add a ghost NE symbol to the map.

Procedure H. Add a Ghost Network Element Symbol to the Map

Step	Action
Notes: 1. Users of the Security class can perform this procedure. 2. This procedure cannot be performed via the Web-based interface, that is, the Launch Pad.	
1	In the sub-map window where the ghost NE symbol is to be added, click the Add Object menu item from the Edit menu to invoke the Add Object Palette dialog box.
2	Click on the TP NE icon from the palette of symbol classes in the dialog box. Symbol classes are in the upper portion of the dialog box. When the symbol class is clicked, the palette of available symbol subclasses appears in the lower portion of the dialog box.
3	Using the middle mouse button, drag the ghost subclass symbol onto the destination sub-map and release it in the desired position. Note that ghost subclass symbol graphic is white on a black background. When the symbol is released, the Add Object dialog box appears.
4	Enter the name of the NE that the ghost symbol is to represent into the Label field of the Add Object dialog box. For example, if a ghost NE symbol is being created on the sub-map entitled Central in order to represent a Timehub with the name TH-25 on the sub-map entitled North, enter TH-25 as the label for the ghost symbol.
5	Click on the Selection Name field and enter the selection name if it is different from the label. Note that the selection name entered here must match the selection name of the symbol that the ghost symbol is to represent. *Note:* The selection name must not include the following: single quotes ('), dollar signs ($), exclamation points (!), or spaces.
6	Enter comments (if any) into the Comments field of the Add Object dialog box.
7	Click OK to close the Add Object dialog box.

3

Procedure H. Add a Ghost Network Element Symbol to the Map (cont'd)

Step	Action
8	Click OK in the warning box that appears (the warning box states that the selection name already exists). The ghost symbol will now be labeled with the name entered in the Label field in the above step. Its color will also change to reflect the status color of the NE host symbol it represents. *Caution: Never change the behavior of any symbol from the way in which it has been configured (explodable or executable) as this can cause functional problems with the software. For ghost symbols, the behavior is set to executable.* *Note:* If the ghost symbol disappears after OK is clicked, the selection name entered for the ghost symbol did not match the selection name of the host symbol it represents (or any NE symbol). Add the symbol again, ensuring that the selection names match.
9	Close the Add Object Palette dialog box.

End of Procedure

3

Delete Container and Network Element Symbols

Notes:

1. Symbols must be deleted from within a Container before the Container symbol can be deleted.

2. An NE that is currently being managed by the software must be un-managed before it can be deleted. In order to un-manage a NE, refer to the procedure entitled Un-Manage a Network Element in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad. However, ghost NE symbols do not have to be un-managed before they are deleted.

Procedure I explains how to delete container and NE symbols.

Procedure I. Delete Container and Network Element Symbols

Step	Action
Notes: 1. Users of the Security class can perform this procedure. 2. Symbols can be deleted from the synchronization map either using this procedure, or the equivalent procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad. When deleting symbols using the Launch Pad, however, only the procedure in the chapter entitled Network Topology Creation - over Openview Synchronization Map and Launch Pad can be used.	
1	On the synchronization map, click on the symbol that you want to delete. *Note:* When you click on a host or ghost symbol, the area around the periphery of the symbol darkens, indicating that it is selected.
2	Click the Delete menu item from the Edit menu, then the From All Submaps option in the Delete menu. *Note:* When deleting a ghost symbol, click the "From This Submap" option, or "From All Submaps" to delete it from the current container or from any other containers in which the ghost symbol exists. A host symbol cannot be deleted until all associated ghost symbols have been deleted.
3	Click OK in the delete warning box. Once OK is clicked, the symbol disappears from the sub-map, indicating that it has successfully been deleted.

End of Procedure

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Network Topology - The Launch Pad

Chapter 4

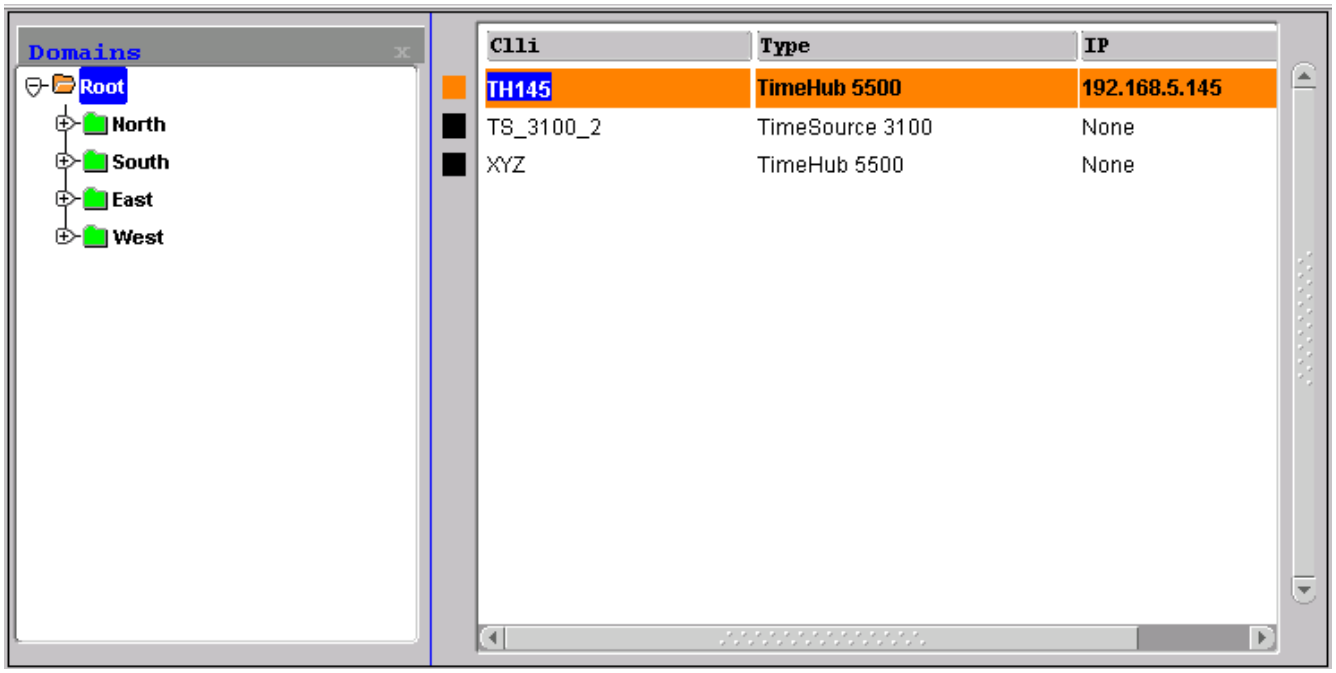
Overview

The software provides a visual representation of the synchronization network's topology in the Launch Pad. This topology is represented in a *containment tree* in the Launch Pad's *target list area*, which can consist of one or more *sub-networks*, each sub-network representing a manageable portion of the synchronization network.

Note: The target list area is divided into two panels, referred to as the *left panel* and the *right panel*.

As an example, a containment tree might be representative of the entire network of NEs supporting a telecommunications network, with each sub-network representing the NEs providing service in a given geographical region. Figure 4 shows an example of a simple containment tree displayed in the target list area.

Figure 4. Containment Tree



At the top of the containment tree is the Root domain. The name of this domain is fixed, and it is in the root domain that the Security-class user creates the other sub-networks. In the above example, the other sub-networks are North, South, East, and West.

Notes:

1. The Root domain and sub-networks are represented as folders in the left panel of the target list area. An alternate term for a sub-network represented in the Launch Pad is *domain folder*.
2. Sub-networks can be created up to four layers deep in TimePictra.

Only the NEs and sub-networks allocated to a given user, that is, those that are included in the user's management domain, are displayed in that user's containment tree. The extent to which a user can operate on the NEs is limited by the group that the user belongs to.

A minus sign (-) preceding a domain folder indicates that the sub-network is currently expanded to show the network elements within it, and double-clicking on the folder or clicking the Collapse shortcut icon will collapse it. A plus sign (+) preceding a domain folder indicates that the sub-network is either collapsed, or does not contain any network elements. If a sub-network is collapsed, double-clicking on the folder or clicking the Expand shortcut icon will expand it (sub-networks "North," "South," "East," and "West" in the above example are currently collapsed). If the sub-network does not contain any network elements, attempting to expand it will not change it and its symbol will remain "+." Network elements that are contained in the domain that is selected in the left panel of the target list area are shown in the right panel of the target list area. The network element names are preceded by color-coded squares (■ in the above example). The significance of these color-coded squares is explained in the next paragraph.

Status Representation

The color-coded squares in the target list area change to reflect changes in status within the network. The following sections explain how the status of NEs, sub-networks, and the Root domain is represented.

NE Status Representation

Each network element name in the target list area is preceded by a color-coded square, which indicates the current status of the network element. The color of this square will change to indicate the current management status of the network element, or the severity level of the most urgent alarm currently active within the network element. Table H shows the status represented by the color-coding.

Table H. NE Status Representation

Color	Status
Red	*Critical* - at least one critical alarm is active for the represented network element. Major and minor alarms might also be active.
Orange	*Major* - at least one major alarm is active for the represented network element. Minor alarms might also be active.
Yellow	*Minor* - at least one minor alarm is active for the represented network element.
Green	*Managed* - the software is currently managing the network element, and no alarms are active for the network element.
Black	*Unmanaged* - the software is not currently managing the network element.
Blue	*Unavailable* - the software is managing but is currently not able to communicate with the network element.
Any color, with "X"	*Manage Failed*- Manage operation was attempted but failed. Problem must be resolved.

To refresh the severity status of an individual NE, click on a different NE in the tree, then re-click the NE for which the refreshed status is desired.

Root Domain / Sub-Network Status Representation

When the status of network elements at the lower levels of the containment hierarchy change, their status is propagated up to the sub-networks in which they are contained, and ultimately up to the Root domain. As the status is propagated upward through the containment hierarchy, the color of the sub-network and Root domain folders in the target list area change to indicate the change in status. Table I shows the status represented by the color-coding.

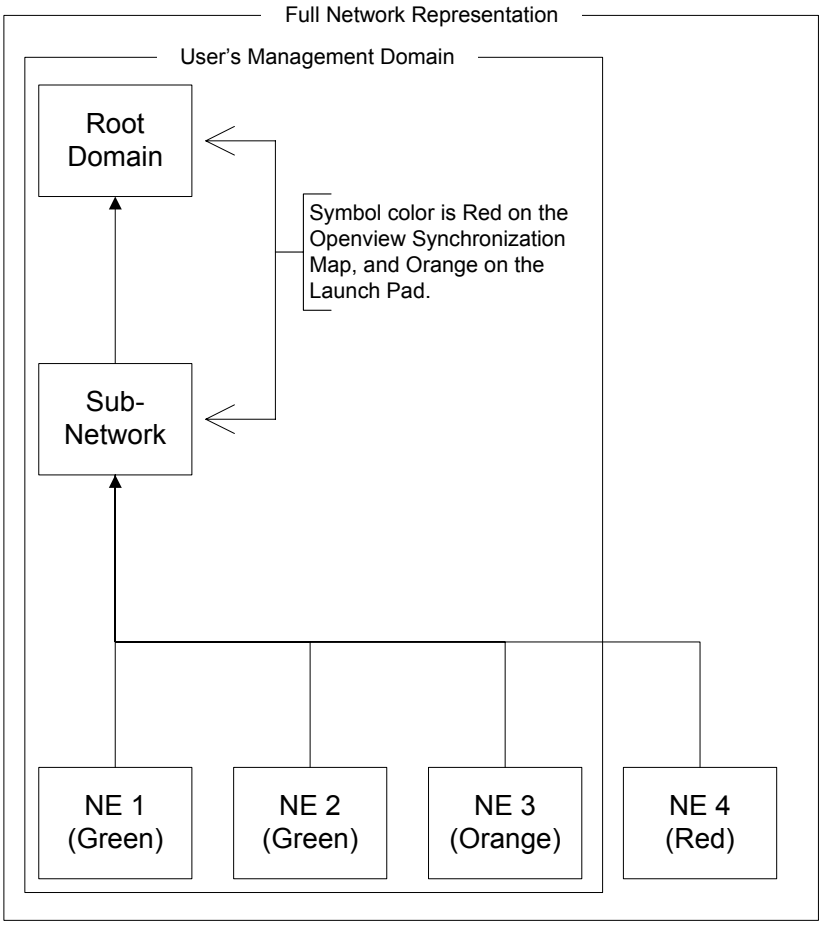
Table I. Root Domain / Sub-Network Status Representation

Color	Status
Red	*Critical* - at least one critical alarm is active in one or more network elements within the sub-network. This status is propagated up to the Root domain. Major and minor alarms might also be active within the sub-network.
Orange	*Major* - at least one major alarm is active in one or more network elements within the sub-network, and no critical alarms are active in the network elements within the sub-network. This status is propagated up to the Root domain. Minor alarms might also be active within the sub-network.
Yellow	*Minor* - at least one minor alarm is active in one or more network elements within the sub-network, and no critical or major alarms are active in the network elements within the sub-network. This status is propagated up to the Root domain.
Green	*Normal* - all network elements within the sub-network are managed, and no alarms are active in any of the network elements within the sub-network. If the Root domain is showing a status of normal, no alarms are active in the network represented in the containment tree.

Notes:

1. Root domain and sub-network status takes into account alarms not only from NEs, but non-NE alarms also. For example, if one NE in a sub-network is not available while all other NEs in the sub-network have no outstanding alarms, the non-NE alarm “SE_NENA” (“network element not available”) is still logged to the database. This non-NE alarm has a severity of critical, which is propagated to the sub-network, and the sub-network domain folder will have a color-code of red.
2. In a Web-based user session, the status propagation shown in the Launch Pad takes into account only those NEs and sub-networks that are included in the user’s management domain. This is different from the status propagation shown in the Openview Synchronization Map, which takes into account all NEs and sub-networks. Figure 5 illustrates this:

Figure 5. Status Propagation



4

Topology Updates

To eliminate excessive network traffic that might result, topology and NE status changes as shown in the containment tree are not automatically updated when they occur. The Refresh shortcut icon in the Launch Pad can be clicked at any time to manually update the topology and NE status as shown in the containment tree.

Note: Alternatively, the topology and NE status can be manually refreshed by choosing Refresh from the View menu.

Automatic Refresh of the Containment Tree in the Launch Pad

An auto-refresh interval can be set, which determines the frequency at which the topology and NE status in the containment tree of the Launch Pad is automatically updated. One of several auto-refresh intervals - ranging from 30 seconds to 1 hour - can be chosen. The topology and NE status can also be updated at any time by clicking the Refresh shortcut icon. Procedure J describes how set up the automatic refresh feature.

Procedure J. Automatic Refresh of the Containment Tree in the Launch Pad

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Invoke the Auto Refresh dialog box by choosing Auto Refresh… from the View menu.
2	In the Auto Refresh dialog box, click the Enable Refresh check-box so that it is selected.
3	Choose the desired auto-refresh interval from the drop-down list in the dialog box.
4	Click OK to close the Auto Refresh dialog box and activate the automatic refresh feature.
End of Procedure	

Note: The remainder of this document presents Network Topology Creation over *both the* Openview Synchronization Map *and the* Launch Pad.

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Network Topology Creation - over Openview Synchronization Map and Launch Pad

Chapter 5

Topology Creation

The software represents the synchronization network topology as a hierarchical *containment tree* consisting of sub-networks, which in turn are populated by network elements. Sub-networks provide a means of conceptually sub-dividing the overall synchronization network into manageable portions. The basic steps involved in creating the network topology are as follows:

- One or more sub-networks are created under the default “Root” domain.
- Network elements are added to sub-networks as they are created.

Notes:

1. Sub-networks can be created up to four layers deep in TimePictra.
2. Once the network topology representation has been created, the software must actively manage the network elements before management operations can take place. Management procedures are included in the section entitled *Network Element Management* in this chapter.

Two dialog boxes are involved in the creation of the network topology: the Sub-Network Management dialog box, and the Add Network Element dialog box.

Sub-Network Management dialog box

The creation and management of sub-networks takes place within the Sub-Network Management dialog box. Sub-networks are created and deleted using this dialog box. Figure 6 and Table J briefly describe the Sub-Network Management dialog box.

Figure 6. Sub-Network Management Dialog Box

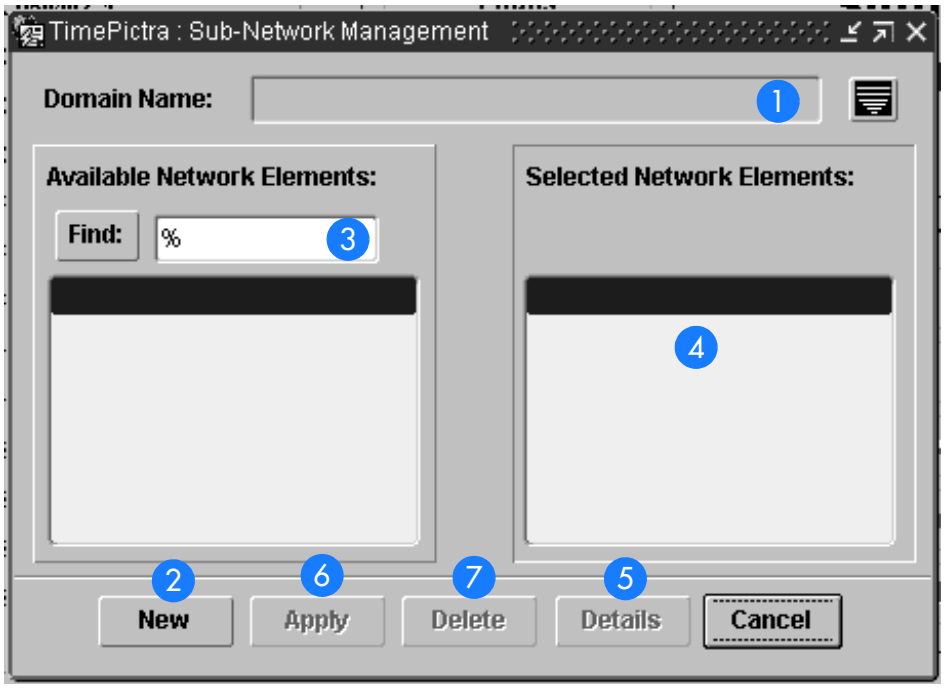


Table J. Sub-Network Management Dialog Box Description

Item	Description
1	The "Domain Name" field contains the name of the sub-network to which the dialog box currently applies. If a sub-network is selected in the Launch Pad (during a web-based session), or in the synchronization map (during an X-Windows-based session), prior to invoking the dialog box, the name of the selected sub-network will appear in this field. *Note:* If the "Root" domain is selected, no name appears in the "Domain Name" field. After the dialog box is invoked, the sub-network can be changed by clicking the button that is to the right of the "Domain Name" field, then selecting another domain name in the sub-box that appears.
2	If the "New" button is clicked, the "Domain Name" field is cleared and becomes editable, so that a name for a new sub-network to be created can be entered.
3	The "Available Network Elements" list area contains a listing of all of the network elements that are currently under the Root domain, and are therefore not currently allocated to any other sub-network.
4	The "Selected Network Elements" list area contains a listing of the network elements that are in the Domain shown in the Domain Name Field.

5

Table J. Sub-Network Management Dialog Box Description (cont'd)

Item	Description
5	Clicking the Details button invokes the OV Submap Layout and Symbol Type dialog box. The selections made in the OV Submap Layout and Symbol Type dialog box affect the layout capabilities and the symbol type for the sub-map as shown in the Openview Synchronization map. The settings made in the OV Submap Layout and Symbol Type dialog box have no effect on the Launch Pad. *Notes:* 1. If the "Root" domain is selected, the Details button is disabled. 2. As a new sub-network is created, the OV Submap Layout and Symbol Type dialog box is automatically invoked as part of the creation process. During the creation process, the user can make selections in the OV Submap Layout and Symbol Type dialog box regarding the layout and symbol type. Once a sub-network has been created, the Details button can still be used to view the layout and symbol type settings for a selected sub-network, but they will not be changeable.
6	*Modifications to sub-networks do not take effect until they are applied.* Clicking the Apply button will apply the modifications made to the selected sub-network, but will not close the dialog box. A question box appears asking if you want to apply the changes before they actually take place. *Note:* Clicking Cancel instead of Apply will close the dialog box. If changes were made to the sub-network that were not applied when Cancel is clicked, the changes will not be applied or saved.
7	Clicking the Delete button will delete the sub-network selected in the "Domain Name" field. A question box will appear asking if you want to delete the sub-network before the delete action takes place. *Note:* A given sub-network must be empty before the system will allow it to be deleted.

Create a Sub-Network

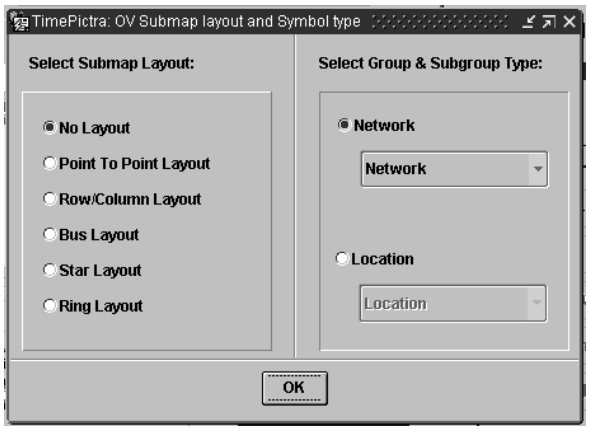
Note: Sub-networks can be created up to four layers deep in TimePictra.

Procedure K explains the creation of sub-networks.

Procedure K. Creating a Sub-Network

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Select the Domain under which the Sub-Network is to be created. By default, it is Root if nothing is clicked. *Note:* To create a Sub-Network under a domain, the user must first select the domain in the Launch Pad or Synchronization Map before launching the Sub-Network Management dialog box.

Procedure K. Creating a Sub-Network (cont'd)

Step	Action
2	Invoke the Sub-Network Management dialog box: *Synchronization Map* - Click on TimePictra>Administration>Sub-Network Management. *Launch Pad* - Choose Sub-Network Mgmt... from the Admin menu. *Note:* You will not be able to invoke the Sub-Network Management dialog box if an NE is selected in the Launch Pad or in the Synchronization Map.
3	Click the New button in the Sub-Network Management dialog box. When the New button is clicked, the OV Submap Layout and Symbol Type dialog box opens. The OV Submap Layout and Symbol Type dialog box appears as follows: 
4	Choose settings in the OV Submap Layout and Symbol Type dialog box as is appropriate: • Choose the sub-map layout option under "Select Submap Layout." The layout option affects how NE and child sub-map symbols can be arranged within the sub-map window in the Openview display. • Choose the group and subgroup type under "Select Group & Subgroup Type." The group is chosen by selecting either the "Network" or "Location" radio button, and the subgroup is chosen from the associated drop-down list for the group. *Note:* In Openview, "group" is analogous to "symbol class," and "subgroup" is analogous to "symbol subclass."
5	Click OK in the OV Submap Layout and Symbol Type dialog box to close it and accept the changes.
6	In the Sub-Network Management dialog box, enter the name of the sub-network to be created into the "Domain Name" field.
7	Choose the appropriate action in the Sub-Network Management dialog box: • To apply the changes and create the new sub-network, click the Apply button. • To cancel all changes, click the Cancel button *before* clicking the Apply button.

Procedure K. Creating a Sub-Network (cont'd)

Step	Action
8	Click the Refresh shortcut icon in the Launch Pad to update the Containment Tree with the changes. The Openview Synchronization Map refreshes automatically if it is in read-write mode, otherwise the map will need to be refreshed.
	End of Procedure

Note: A security class user is allowed to add NEs or Domains to Locations not currently in his or her Management Domain. But the user is not allowed to do any kind of operation on it, until the user specifically adds this newly created object to his or her Management Domain. A Web session user will be able to see the added object after refreshing the screen if the NE is created under a submap already assigned to his or her Management Domain. Otherwise, the NE needs to be added to his or her Management Domain.

Delete a Sub-Network

Before sub-networks are deleted, the network elements contained within them must be removed. Procedure L describes how to delete sub-networks.

Procedure L. Deleting a Sub-Network

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the containment tree of the Launch Pad, or the Openview Synchronization Map, select the sub-network to be deleted.
2	Invoke the Sub-Network Management dialog box: *Synchronization Map* - Click on TimePictra>Administration>Sub-Network Management. *Launch Pad* - Choose Sub-Network Mgmt... from the Admin menu. *Note:* After the Sub-Network Management dialog box opens, the selected sub-network can be changed by clicking the button that is to the right of the "Domain Name" field, then selecting another sub-network in the sub-box that appears.
3	If the sub-network contains network elements (displayed in the field headed "Selected Network Elements") they must all be deleted before continuing with this procedure. Procedure N explains how to delete network elements.
4	Click the Delete button, then click Yes in the question box that appears to delete the sub-network, or No to cancel the delete operation.

Procedure L. Deleting a Sub-Network

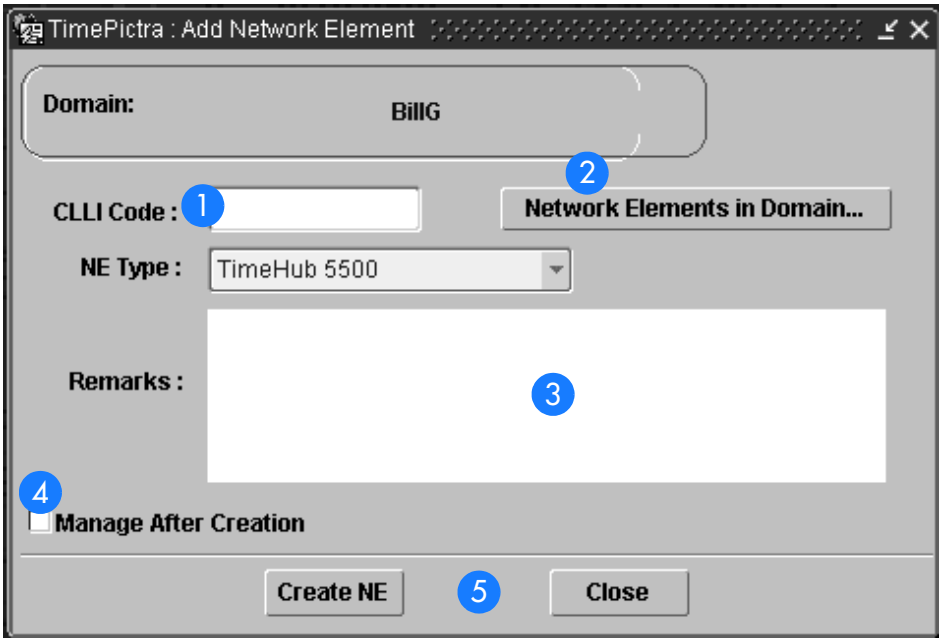
Step	Action
5	To delete more Domains; use the button that is to the right of the "Domain Name" field, select the Domain to be deleted, and repeat the procedure from Step 3.

End of Procedure

Add Network Element dialog box

Network elements are added to the Root domain, or optionally added to non-Root domains, using the Add Network Element dialog box. Figure 7 and Table K briefly describes the Add Network Element dialog box.

Figure 7. Add Network Element Dialog Box



5

Table K. Add Network Element Dialog Box Description

Item	Description
1	The CLLI (common language location identifier) code entered into the "CLLI Code" field becomes the identifier for the Network Element in the TimePictra database, and also identifies the network element in the target list area of the Launch Pad as well as other dialog boxes. The CLLI code entered here should be unique within the network topology, no more than 25 characters in length, and not include any special characters or white spaces.
2	The sub-network chosen in the target list area of the Launch Pad appears in the "Domain" field when the dialog box is invoked. Clicking the Network Elements in Domain... button invokes a box that contains information (CLLI, FDN, Protocol, Address, and Remarks) for all of the network elements currently existing within the sub-network. *Note:* "FDN" (Fully Distinguished Name) is a string that identifies the position of the network element within the management tree from the root of the tree.
3	The "Remarks" field is provided so that any other miscellaneous remarks regarding the network element can be entered.
4	If the "Manage After Creation" check-box is selected, the Manage Network Element dialog box appears immediately after the network element is created in the database, so that management of the network element can be initiated (in this context, management of the network element is the process by which the software sets up communications with the network element). *Note:* The Manage Network Element dialog box is explained in the section entitled *Network Element Management* in this chapter. If the "Manage After Creation" check-box is not selected, the network element is created in the database, and set to the *unmanaged* state.
5	Clicking the Create NE button will add the network element to the database, and close the dialog box. Clicking the Close button will cancel the network element creation operation, and close the dialog box. Question or confirmation boxes might appear when these operations take place.

Add Network Elements

Procedure M creates a network element entry in the TimePictra database. At the completion of this procedure, the network element will be represented in the Openview Synchronization Map or Launch Pad in the *unmanaged* state, meaning that the software is not set up to actively communicate with the network element. In order to manage the network element, refer to the procedure *Initially Manage a Network Element* in this chapter.

Note: The Refresh shortcut icon can be clicked at any time to ensure that the containment tree as shown in the Launch Pad is up-to-date. The Openview Synchronization Map refreshes automatically if it is in read-write mode, otherwise the map will need to be refreshed.

Procedure M. Adding Network Elements

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the Openview Synchronization Map or Launch Pad, select the sub-network to which a network element is to be added.
2	Invoke the Add Network Element dialog box: *Synchronization Map* - Click on TimePictra>Administration>Add Network Element. *Launch Pad* - Click the Add NE... shortcut icon, or choose Add NE... from the Admin menu.
3	Enter the necessary information into the Add Network Element dialog box: • Enter the Common Language Location Identifier (CLLI) code in the "CLLI Code" field. • Select the type of NE to be added from the "NE Type" drop-down list. • Enter any other remarks in the "Remarks" field, if desired. *Note:* To view a listing of all of the network elements currently assigned to the selected domain, click the Network Elements in Domain... button. Before viewing the list of network elements, an entry must be made into the "CLLI Code" field.
4	If you wish to manage the network element immediately after it is created, select the "Manage After Creation" check-box.
5	Choose the appropriate action: • To add the network element to the TimePictra database, click the Create NE button, then click OK in the confirmation box that follows. • To cancel the network element creation operation, click the Cancel button. *Note:* If the "Manage After Creation" check-box was not selected, the network element is added to the database in the unmanaged state. If the "Manage After Creation" check-box was selected, the Manage Network Element dialog box will be invoked immediately after the network element is added to the database. Refer to the procedure *Initially Manage a Network Element* in this chapter for information on managing the network element.
6	Click the Refresh shortcut icon in the Launch Pad to update the target list area with the changes. The Openview Synchronization Map refreshes automatically if it is in read-write mode, otherwise the map will need to be refreshed.

End of Procedure

Note: **A security class user is allowed to add NEs or Domains to Locations not currently in his or her Management Domain. But the user is not allowed to do any kind of operation on it, until the user specifically adds this newly created object to his**

or her Management Domain. A Web session user will be able to see the added object after refreshing the screen if the NE is created under a submap already assigned to his or her Management Domain. Otherwise, the NE needs to be added to his or her Management Domain.

Delete Network Elements

Note: A network element that is currently being managed must be unmanaged before it can be deleted. To unmanage a network element, refer to Procedure P, entitled *Unmanage a Network Element* in this chapter.

Procedure N describes how to delete network elements.

Procedure N. Deleting Network Elements

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the Openview Synchronization Map or Launch Pad, select the network element to be deleted. *Note:* To expand a sub-network in the Launch Pad so that the network elements under it can be accessed, double-click the sub-network in the target list area, or click it and then click the Expand button. To explode a submap symbol in the Synchronization Map so that the network elements under it can be accessed, double-click it.
2	Choose the appropriate action: • *Synchronization Map* - Click on TimePictra>Administration>Delete Network Element. • *Launch Pad* - Click the Delete NE... shortcut icon, or choose Delete NE... from the Admin menu.
3	Click Yes in the question box that appears to delete the network element, or No to cancel the delete operation.
4	Click OK in the confirmation box that appears.
	End of Procedure

5

Network Element Management

When a network element is added to the TimePictra database, it is initially in the *unmanaged* state, meaning that the software is not set up to actively communicate with it. Before the software can communicate with a network element, the software must have some basic information about the network element, such as its network address and port. Once the software has this information, it can setup communications with the network element, and retrieve information from it. The procedures in this section explain how to initially manage, unmanage, and remanage network elements.

The Manage Network Element dialog box is involved in the management of network elements. Figure 8 and Table L briefly describe the Manage Network Element dialog box.

Figure 8. Manage Network Element Dialog Box

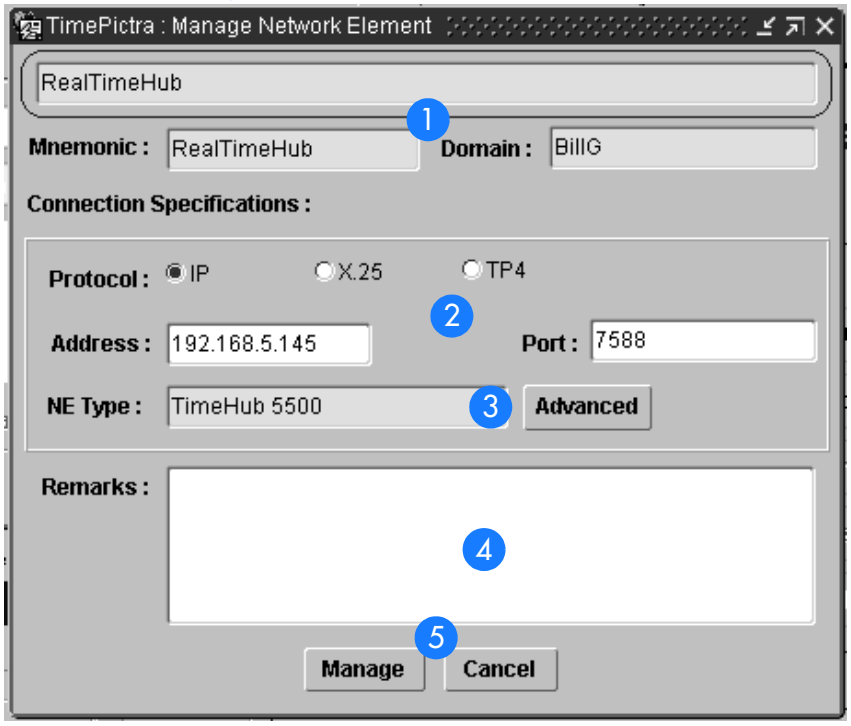


Table L. Manage Network Element Dialog Box Description

Item	Description
1	The CLLI code of the network element to be managed is shown in the uppermost field. The "Domain" field indicates the sub-network to which the network element is assigned. These two fields as well as the "Mnemonic" field contain information that was entered when the network element was added to the TimePictra database. The information as shown in this dialog box is for display only.

Table L. Manage Network Element Dialog Box Description (cont'd)

Item	Description
2	The "Protocol" radio buttons are used to choose the communication protocol over which TimePictra will communicate with the NE being managed. Depending upon the NE type being managed, some of the "Protocol" radio buttons might not be active. The address and port entered into the "Address" and "Port" fields must match the address and port that is configured locally at the network element. The address/port combination must be unique among all of the network elements to be managed. *Note:* An address must be entered into the "Address" field before the protocol can be chosen.
3	The "NE Type" field indicates the type of NE being managed. Note that the NE type cannot be modified in this dialog box. *Depending upon the NE type selected, the Advanced button might or might not be active.* If the NE type requires a user name and password as a prerequisite for management, then clicking the Advanced button will invoke a sub-box in which those settings can be entered. Scrambling of communications between the TimePictra software and the NE is also chosen in the sub-box.
4	The "Remarks" field is provided so that any other miscellaneous remarks regarding the network element can be entered.
5	Clicking the Manage button begins the management process. Clicking the Cancel button will cancel the network element management operation, and leave the network element in the unmanaged state.

Initially Manage a Network Element

Once a network element has been added to the TimePictra database, the software must know the network address, port, and some other information before the network element hardware can be managed. Procedure O explains how to set up the software to initially manage network elements.

Procedure O. Initially Managing a Network Element

Step	Action
Notes: 1. Users of the Administrator and Security classes can perform this procedure. 2. If, when the Network Element was created, the "Manage After Creation" check-box was selected, the Manage Network Element dialog box automatically opens, so steps 1 and 2 of this procedure can be skipped.	
1	In the Openview Synchronization Map or Launch Pad, select the network element to be managed. *Note:* Network elements that are currently unmanaged are color-coded black in the target list area of the Launch Pad.
2	Invoke the Manage Network Element dialog box: • *Synchronization Map* - Click on TimePictra>Administration>Manage NE. • *Launch Pad* - Click the Manage NE... shortcut icon, or choose Manage NE... from the Admin menu.
3	Enter the address and port of the NE into the Address and Port fields of the Manage Network Element dialog box. The address and port entered here must match the address and port set at the network element and be in the valid protocol format.
4	Select the communication protocol over which TimePictra will communicate with the NE by selecting the appropriate "Protocol" radio button. Note that only the radio buttons for those protocols that are supported by the NE being managed will be active (not grayed out).
5	If the Advanced button is active (not grayed out), click it to invoke the User Name & Password dialog box, and enter the user name and password necessary to manage the NE into the NE User and Password fields, and choose whether or not to use encryption (scrambling) in the Scramble drop-down list. The choice of scramble must match the settings of the Network Element. *Note:* The user name and password entered here must match the actual user name and password set at the NE.
6	Click OK in the User Name & Password dialog box, enter any other remarks into the Remarks field of the Manage Network Element dialog box, then click the Manage button to begin the management process.

Procedure O. Initially Managing a Network Element (cont'd)

Step	Action
7	After the management process is complete, click the Refresh shortcut icon in the Launch Pad to update the status of the network element. The Openview Synchronization Map refreshes automatically if it is in read-write mode, otherwise the map will need to be refreshed. *Warning:* **While Managing or Remanaging the NE, if the operation is unsuccessful, it is strongly recommended that the issue be solved and the NE managed successfully before carrying out any management operations, as this is an invalid state and inconsistencies will exist. NEs for which the manage operation has been unsuccessful are shown with an "X" in its status color box in the Containment Tree of the Launch Pad. Indication of an unsuccessful manage operation is also given, when the failure occurs, in the Openview Synchronization Map. In this case, the system displays the message "REMANAGE" in the NE symbol.**

End of Procedure

Unmanage a Network Element

Note: **In certain situations, such as when a network element is to be serviced, it might be desirable to unmanage it. When a network element is unmanaged, the connection between it and the software is dropped. Procedure P explains how to unmanage a network element.**

Procedure P. Unmanaging a Network Element

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the Openview Synchronization Map or Launch Pad, select the network element to be unmanaged.
2	Choose the appropriate action: • *Synchronization Map* - Click on TimePictra>Administration>Unmanage NE. • *Launch Pad* - Click the Unmanage NE... shortcut icon, or choose Unmanage NE... from the Admin menu.
3	Click the Yes button when the question `Do you want to unmanage` *`ne_name`*`?` appears. *Note:* Where *`ne_name`* is the name of the selected NE. When the unmanage operation completes, a message box containing the message *`ne_name`* `Unmanaged Successfully` appears. Click OK in this message box to dismiss it. Note also that the color-coding of the network element entry or symbol changes to indicate that is now unmanaged.

End of Procedure

5

Remanage a Network Element

Note: **To manage a network element for the first time, refer to Procedure O, entitled *Initially Manage a Network Element.***

Procedure Q explains how to remanage a network element.

Procedure Q. Remanaging a Network Element

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the Openview Synchronization Map or Launch Pad, select the network element to be remanaged. *Note:* It is possible to remanage network elements that are currently being managed, as for resynchronization of configuration information between the network element and database. Currently unmanaged network elements are color-coded black in the Containment Tree on the Launch Pad or tan in the Openview Synchronization Map, and currently managed network elements are color-coded either green, yellow, orange, red, or blue.
2	Invoke the Manage Network Element dialog box: • *Synchronization Map* - Click on TimePictra>Administration>Manage NE. • *Launch Pad* - Click the Manage NE... shortcut icon, or choose Manage NE... from the Admin menu. *Note:* If the network element that you are remanaging is currently being managed, a question box will appear containing the message `ne_name is already managed. Proceed to Remanage?` Answer Yes to proceed with or No to abort the remanagement operation.
3	If the Advanced button in the Manage Network Element dialog box is active (not grayed out), click it to invoke the User Name & Password dialog box, and enter the user name and password necessary to manage the NE into the NE User and Password fields, and choose whether or not to use encryption (scrambling) in the Scramble drop-down list. Click OK in the Window_Advanced dialog box, enter any other remarks into the Remarks field. *Notes:* 1. The user name and password entered here must match the actual user name and password set at the NE. 2. If no user name and password is entered, then TimePictra will assume the previously-entered username and password.
4	Click OK in the User Name & Password dialog box, enter any other remarks into the Remarks field of the Manage Network Element dialog box, then click the Manage button to begin the remanagement process.
5	After the remanagement process is complete, click the Refresh shortcut icon in the Launch Pad to update the status of the network element. The Openview Synchronization Map refreshes automatically if it is in read-write mode, otherwise the map will need to be refreshed.

Procedure Q. Remanaging a Network Element (cont'd)

Step	Action
6	Note the color-coding of the network element entry to determine the remanagement status of the network element: • If the color-coding is green, yellow, orange, or red, the network element is now being managed. • If an error occurs and the color of the symbol is blue, or an "X" appears in the color-coded status of the NE in the Containment Tree of the Launch Pad, the remanagement operation was not successful. *Warning:* While Managing or Remanaging the NE, if the operation is unsuccessful, it is strongly recommended that the issue be solved and the NE managed successfully before carrying out any management operations, as this is an invalid state and inconsistencies will exist. NEs for which the manage operation has been unsuccessful are shown with an "X" in its status color box in the Containment Tree of the Launch Pad. Indication of an unsuccessful manage operation is also given, when the failure occurs, in the Openview Synchronization Map. In this case, the system displays the message "REMANAGE" in the NE symbol.

End of Procedure

5

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Fault Management

The procedures in this chapter explain how to view and interpret the Network Element Status, Alarm Viewer, and Event Log displays, perform fault analysis, and how to print alarm and event reports.

Chapter 6

Overview

The fault management application provides dialog box displays to aid in the management of alarms and other events. An alarm is a type of event that has some level of severity assigned to it. Alarms are emitted by the NE according to manufacturer specifications and network operator configuration. Events are other messages pertaining to the status of the NE, its inputs, or monitored lines. All alarms are also events. The dialog box displays are as follows:

- The *Network Element Status* dialog box provides a snapshot of the front panel of the NE that is selected in the target list area of the Launch Pad. It simulates some of the status indicators on the front panel of the cards in the selected NE, including the alarm indicators on the cards.
- The *Alarm Viewer* dialog box contains a summary of the outstanding alarms (that is, those alarms that have not been discharged or cleared) from all managed NEs.
- The *Fault Analysis* dialog boxes are used to analyze the fault behavior of selected NEs over time.
- The *Event History Log* dialog box contains a summary of discharged and cleared alarms, and all other non-alarm events.

In addition, the software is capable of generating the following types of reports:

- *Alarm Reports* - An Alarm Report can be generated that contains the alarms currently active for a selected NE.
- *Event Reports* - An Event Report can be generated that contains the events in the event history log for a selected NE.

Cleared and Discharged Alarms

Once alarms have been cleared or discharged, they are transferred from the Alarm Viewer dialog box to the Event History Log dialog box.

Alarms are considered *cleared* when the fault that caused the alarm is remedied, such as when a malfunctioning card in a NE is replaced and the system determines that the problem no longer exists. When an alarm is cleared, the NE returns a *clearing event* for the alarm, and when TimePictra receives the clearing event, it moves the alarm and the clearing event to the Event History Log dialog box.

The software periodically retrieves the active alarms from each NE and compares these with the alarms in the Alarm Viewer dialog box. If a mismatch is discovered between the alarms in the Alarm Viewer and those obtained from a NE, the software assumes the alarms obtained from the NE to be current, and sends the mismatched alarms to the Event History Log dialog box as alarms that have been cleared by the system. In this case, the message `Cleared By System` appears in the “Description” field of the Event History Log. This alarm synchronization process repeats whenever a NE is managed, when a NE’s status changes from unavailable to available, or once every 12 hours.

Discharging of alarms is a user action that effectively clears the alarms from the Alarm Viewer and moves them to the Event History Log dialog box. Discharged alarms are tagged in the database with the time they were discharged as well as the user who discharged them. Only alarms that have been acknowledged can be discharged, and only by TimePictra users of the Security and Administrator user classes.

In This Chapter

The procedures in this chapter can be referenced when performing fault management operations. The fault management tasks addressed in this chapter include the following:

- NE Status Summary: The displaying of a summary of the status of the various boards in a specified NE.
- Fault Analysis: Analysis of the number of alarms and events generated by NEs over a given period of time and on the basis of severity.
- Alarm Management: Viewing a summary of alarms occurring in the network.
- Event Management: Viewing a summary of network events.
- Reports: Producing and printing formatted alarm and event reports.

Network Element Status

The software contains a dialog box that summarizes the status of the various equipment cards within a selected NE. This dialog box, the *Network Element Status dialog box*, presents a display which visually resembles the equipment panels of the various cards in the NE.

The procedure below explains how to invoke the Network Element Status dialog box, and how to use the features of the dialog box. The appendices in this manual, which supplement this section, contain the following specific information for each NE:

- A screen capture of the Network Element Status dialog box, and a description of the dialog box features.
- Tables that explain in detail the status indicators shown on the equipment card panels of the NE.

View the Status Panel

Procedure R explains how to view the status panel of a NE.

Procedure R. Viewing the Status Panel

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	On the synchronization network map or Launch Pad, click the NE symbol for which you want to display the status panel.

Step	Action
2	Invoke the Network Element Status dialog box: *Synchronization Map* - Click TimePictra>Faults>Network Element Status from the Main Menu. *Launch Pad* - Click the NE Status... shortcut icon, or choose NE Status... from the Faults menu. The dialog box displays a summary of the status of the selected NE. It shows various useful data as explained at the beginning of this section, as well as a simulation of the panel areas of cards contained within the NE. The status can be updated at any time by clicking the Refresh button in the Network Element Status dialog box, or by setting the automatic "Refresh Interval" to the desired value (the default refresh interval is 5 minutes; the minimum refresh interval is 30 seconds). The Network Element Status sections of the appendices listed below provide NE-specific detailed descriptions of the dialog box features as well as the status indicators shown on the NE panels. • *DCD 5.01.05* - Appendix A • *DCD 5.04.02/5.05.02/5.05.04* - Appendix B • *PRR10* - Appendix C • *TimeHub 5500* - Appendix D • HP 55400/ 55409 - Appendix E • *TimeSource 3000 and 3500* - Appendix F • *TimeSource 3100 and 3600* - Appendix G • *TSG 3800 Version D and E* - Appendix H *Note:* More than one Network Element Status dialog box may be opened per TimePictra session, however no more than one per NE per user is recommended.
3	If alarm indicators on the card panels appear lit, you can click on them to invoke an Alarm Viewer dialog box. In this case, the Alarm Viewer will display only those alarms that are specific to the indicator, as explained below: • Clicking the Alarm check-box that is in the non-equipment panel area of the display invokes an Alarm Viewer that contains all active shelf (chassis) alarms related to the NE's chassis. • Clicking a Critical indicator that is on the panel of an equipment card invokes an Alarm Viewer that contains all active critical alarms in the card. • Clicking a Major indicator that is on the panel of an equipment card invokes an Alarm Viewer that contains all active major alarms in the card. • Clicking a Minor indicator that is on the panel of an equipment card invokes an Alarm Viewer that contains all active minor alarms in the card. *Notes:* 1. The Alarm check-box might be labeled ALM on certain NE Status Panel displays. 2. The indicators explained above might not be available on the status panels of all equipment cards for all NEs.

Procedure R. Viewing the Status Panel (cont'd)

Step	Action
4	To close the Network Element Status dialog box as well as any other associated status summary displays that are open, click the Close button.
	End of Procedure

Fault Analysis

The software provides functionality to analyze the alarms and events generated by NEs over a period of time. Extensive filtering options allow the events or alarms included in the analysis to be filtered based on the following criteria:

- Event Category: Either alarms and events that are stored in the event history log (historic events), or only current alarms, can be analyzed.
- Time Range: Events generated within a specified range of time can be analyzed.
- Network Elements: Events generated from specified NEs can be analyzed.
- Event Types: Events of specified event types can be analyzed.
- Aids: Events from certain aids can be included in or excluded from the analysis.
- Severity: Events of specified severities can be analyzed.

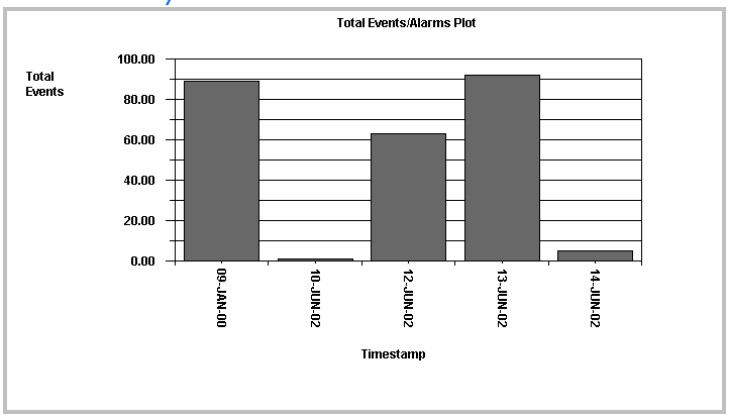
Analysis Results

During fault analysis, alarms and events generated by specified NEs are tallied and then can be displayed in a variety of ways in either a bar chart or pie chart. The following analysis results are available:

Date

This analysis displays a bar chart that shows a summation of the number of events and alarms that were generated by the specified NEs on each day of a specified period of time. Figure 9 shows an example of this type of chart.

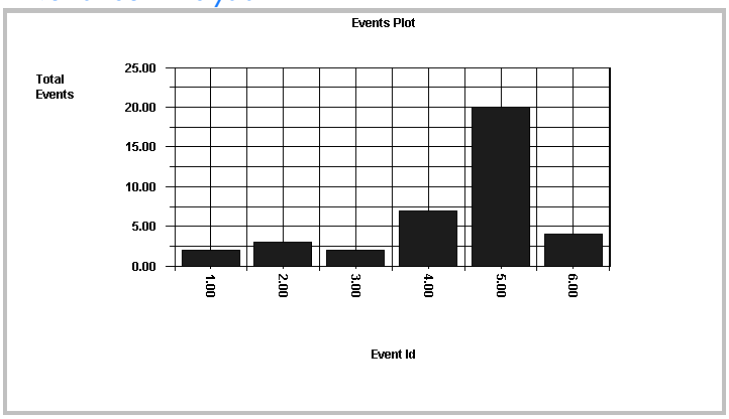
Figure 9. Analysis Results - Date Fault Analysis



Events

This analysis displays a bar chart showing a breakdown, by event type, of the number of events generated by specified NEs during a specified period of time. The Index drop-down list in the Fault Analysis main form serves as a key to the event numbers displayed across the horizontal axis of the dialog box. If the “Include Aid” check-box in the Plot Type Selection dialog box is selected, the display shows the breakdown not only by events, but also by the aids that generated the events. Figure 10 shows an example of this type of chart.

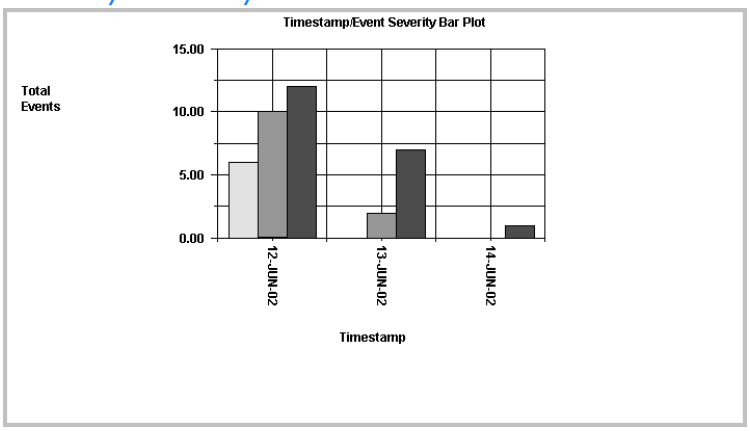
Figure 10. Analysis Results - Events Fault Analysis



Severity

This analysis displays a bar chart that shows a breakdown, by severity, of the number of events generated by specified NEs on each day of a specified period of time. Figure 11 shows an example of this type of chart.

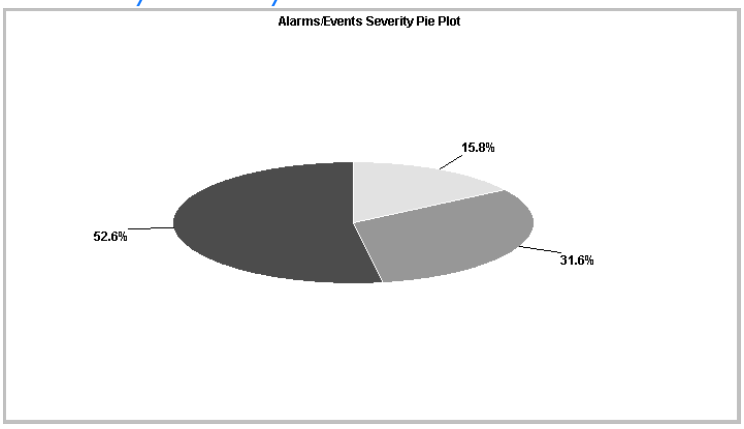
Figure 11. Analysis Results - Severity Fault Analysis



Pie Severity

This analysis displays a pie chart showing a breakdown, by severity, of the percentage of events generated by a specified NE during a specified period of time. Figure 12 shows an example of this type of chart.

Figure 12. Analysis Results - Pie Severity Fault Analysis



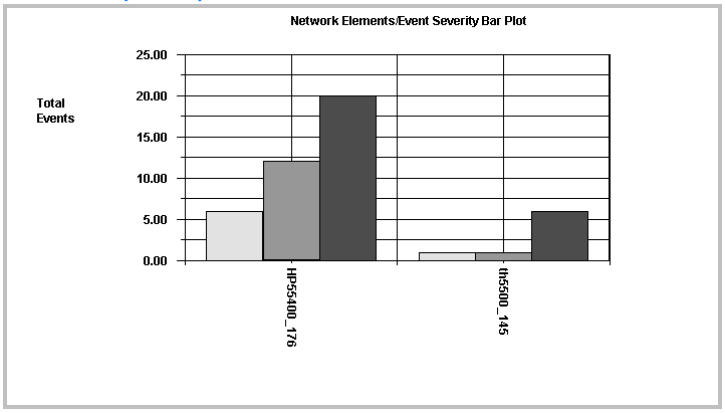
NE Severity

This analysis displays a bar chart showing a breakdown, by severity, of the number of events generated by each of the specified NEs during a specified period of time.

Note: Up to fifteen NEs can be specified for NE Severity analysis.

Figure 13 shows an example of this type of chart when two NEs are specified; TH5500_145 and HP55400_176.

Figure 13. Analysis Results - NE Severity Analysis



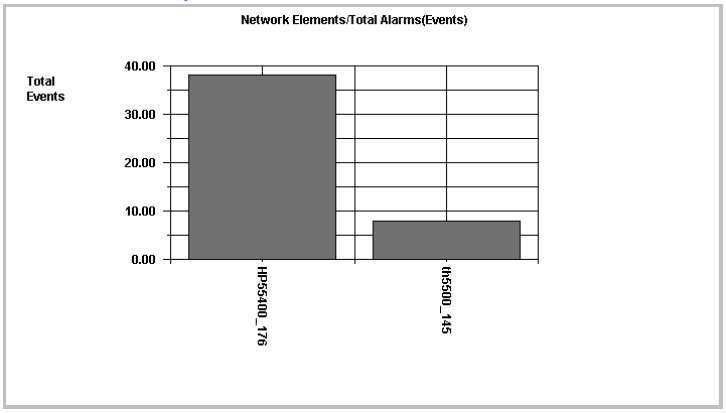
NE Alarm

This analysis displays a bar chart that shows a summation of the number of events and alarms that were generated by each of the specified NEs during a specified period of time.

Note: Up to fifteen NEs can be specified for NE Alarm analysis.

Figure 14 shows an example of this type of chart when two NEs are specified; TH5500_145 and HP55400_176.

Figure 14. Analysis Results - NE Alarm Analysis



The Fault Analysis Dialog Box

The Fault Analysis dialog box is used when accessing the fault analysis functions of the software. The Fault Analysis dialog box is shown in Figure 15 and described in Table M.

Note: In Figure 15, the Fault Analysis dialog box is shown displaying the “Events” plot type.

Figure 15. Fault Analysis Dialog Box

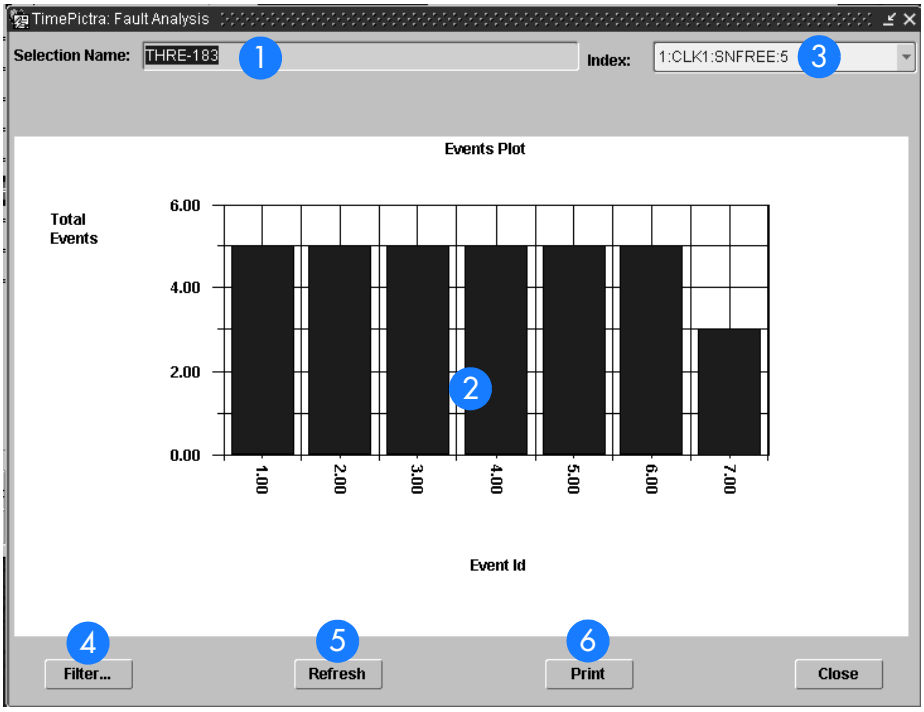


Table M. Fault Analysis Dialog Box Description

Item	Description
1	When the Fault Analysis dialog box is first invoked, the NE that is selected in the Launch Pad during a web-based session or in the Synchronization Map during an X-Windows-based session is displayed in this field, and analysis is performed for that selected NE. After the dialog box has been invoked, the NEs on which analysis is performed can be changed using the filtering capabilities that are accessed by clicking the Filter... button. *Note:* If more than one NE is specified via filtering, the message "Multiple NE selection, see NE filter for details" will be shown in this field.
2	This area of the dialog box displays the analysis results. When the Fault Analysis dialog box is first invoked, the graph for Date fault analysis is displayed, but can be changed using the filtering capabilities that are accessed by clicking the Filter... button. *Note:* Refer to Analysis Results in this chapter for more information on the types of analysis displays that are available.

Table M. Fault Analysis Dialog Box Description (cont'd)

Item	Description
3	When the "Events" plot type is being displayed, the Index field is a key to the Event IDs displayed along the horizontal axis of the plot. The index is in the following form: *ID:AID:CONDITION:QUANTITY* where *ID* is the Event ID shown along the horizontal axis, *AID* is the aid (sub-unit) that produced the condition, *CONDITION* is the event type, and *QUANTITY* is the number of events represented by the bar in the plot. *Note: AID* is included in the Index only if the "Include Aid" check-box is selected in the Plot Type Selection dialog box, which is accessed via the filtering feature.
4	Clicking the Filter... button calls up a dialog box in which filtering criteria can be chosen that determine the alarms and events that are included in the analysis. Refer to the task *Using the Fault Analysis Filter Function* for more information.
5	The Fault Analysis display is not automatically updated after it is opened. Clicking the Refresh button updates the Fault Analysis display so that it reflects the alarm and event conditions stored in the database at that instant.
6	Clicking the Print button initiates a sequence from which the Fault Analysis dialog box can be printed. The sequence differs depending upon whether the user session is Web-based or X-Windows based. Refer to either the procedure entitled Print the Fault Analysis Plot - Web-Based User Sessions, or Print the Fault Analysis Plot - X Windows-Based User Sessions, for details.

Perform Fault Analysis

Procedure S explains how to invoke the Fault Analysis dialog box. When the Fault Analysis dialog box is first invoked, Date fault analysis is displayed for the NE that is selected on the Synchronization Map or Launch Pad. Once the dialog box has been invoked, the filtering criteria can be changed to effect different analysis results using Procedure T.

Procedure S. Perform Fault Analysis

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	On the synchronization network map or Launch Pad, click the NE symbol for which Fault Analysis is to be performed.

Procedure S. Perform Fault Analysis (cont'd)

Step	Action
2	Invoke the Fault Analysis dialog box: *Synchronization Map* - Click on TimePictra>Faults>Fault Analysis. *Launch Pad* - Click the Fault Analysis... shortcut icon, or choose Fault Analysis... from the Faults menu. By default, the Fault Analysis dialog box will display Date fault analysis for the selected NE. *Note:* No more than one Fault Analysis dialog box opened at a time per TimePictra Web or OVW session is recommended.
3	Click the Refresh button to refresh the fault analysis plot. The Fault Analysis plot is not automatically updated after it is opened, however, clicking the Refresh button at any time updates it.
	End of Procedure

Using the Fault Analysis Filter Function

Once the Fault Analysis dialog box has been invoked, the filtering criteria can be changed to effect different analysis results using Procedure T.

Procedure T. Using the Fault Analysis Filter Function

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Invoke the Fault Analysis dialog box if it is not already open. Refer to Procedure S, above, for information on how to invoke the Fault Analysis dialog box.
2	Click the Filter... button in the Fault Analysis dialog box to invoke the Event/Alarm Filtering Criteria dialog box, then choose the desired filtering criteria. Filtering criteria are explained in Table N.
3	Choose the appropriate action: • Click the Plot button in the Event/Alarm Filtering Criteria dialog box to close it and return to the Fault Analysis dialog box. The selected filtering criteria information will be applied to the fault analysis graph that is displayed. • Click the Cancel button in the Event/Alarm Filtering Criteria dialog box to close it and return to the Fault Analysis dialog box, without applying the selected filtering criteria.

Procedure T. Using the Fault Analysis Filter Function (cont'd)

Step	Action
	End of Procedure

Table N explains the fault analysis filtering criteria.

Table N. Fault Analysis Filtering Criteria

Filtering Criteria	Description
Historic Events / Current Alarms	The following alarms and events can be analyzed: • *Historic Events*, that is, those events that appear in the Event History Log • *Current Alarms*, that is, those alarms that appear in the Alarm Viewer Select either the "Historic Events" or "Current Alarms" radio button as is appropriate.
Plot Type Selection	A variety of different fault analysis plots can be produced, as explained under Analysis Results in this chapter. Under "Plot Type Selection," click the Plot Type... button to invoke the Plot Type Selection dialog box, choose the radio button for the appropriate plot type, and click OK. If the "Events" radio button was selected, select the "Include Aid" check-box to have the analysis display a breakdown of events by the aids that generated them.
Time	Fault analysis can be performed on alarms and events that were generated over a period of time. Under "Time," modify the dates and times shown so that they reflect the beginning and end of the desired time frame (be sure to use the format as shown). Alternatively, click the First Alarm/Event or Last Alarm/Event button to set the beginning or end of the time frame to ensure that the first or last alarm in the database for the selected NE is displayed. (The format is *DD-MON-YYYY HH:MN* where *DD* is the day, *MON* is a three letter representation of the month, *YYYY* is the year, *HH* is the hour in 24-hour format, and *MN* is the minutes).
Network Elements	Alarms and events can be filtered so that only those from selected NEs are analyzed. Under "Network Elements," select the appropriate radio button: • *All*, to analyze alarms and events from all NEs in the user's management domain • *Select*, to analyze alarms and events from selected NEs in the user's management domain • *15 NEs with max alarms*, to analyze alarms and events from the fifteen NEs that currently have the greatest number of outstanding alarms *Note:* The *15 NEs with max alarms* setting is significant only for the NE Severity and NE Alarms plot types. If the "Select" radio button was selected, click the Filter... button to call up the "Network Element Filter" dialog box. In that dialog box, select the desired locations (sub-networks) under "Locations" to show all of the network elements contained in those sub-networks in the "Available Network Elements" scroll box. To select network elements, select them in the "Available Network Elements" scroll box, click > to transfer them to the "Selected Network Elements" scroll box, or >> to transfer all items to the "Selected Network Elements" scroll box, then click OK to add the selected items to the filtering criteria. *Note:* Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons

Table N. Fault Analysis Filtering Criteria (cont'd)

Filtering Criteria	Description
Event Types	Alarms and events can be filtered so that only those of specified types are analyzed. Under "Event Types," select the appropriate radio button: • *All*, to analyze all alarm and event types • *Select*, to analyze selected alarm and event types If the "Select" radio button was selected, click the Filter... button to call up the "Condition Type Filter" dialog box. In that dialog box, type an event type that is to be included in the analysis into the "Condition Type" text entry field and click > to transfer the item to the right-hand scroll box (Selected Condition Types). Repeat the operation for all event types to be included in the analysis, then click OK to add the selected items to the filtering criteria. *Note:* Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons
Include Aids / Exclude Aids	Alarms and events can be filtered so that only alarms/events from specified aids (sub-units) are analyzed. Aids specified by the "Include Aid" pattern will be included in the analysis, and aids specified by the "Exclude Aid" pattern will be excluded from the analysis. In the pattern, the "%" character is a wildcard character, so including "%" by itself as the pattern specifies all aids, "CLK%" specifies CLK aids of any numeric type (CLK1, CLK2), etc. *Note:* By default, the "Include Aid" pattern is "%" to indicate that all aids are included in the analysis, and the "Exclude Aid" pattern is blank, to indicate that no aids are excluded from the analysis.
Severity	Alarms and events can be filtered so that only alarms/events of specified severity levels are analyzed. If a severity level check-box is selected, alarms and events of that severity level will be included in the analysis and displayed. Clicking the All button causes alarms of all severity levels to be included in the analysis and displayed, effectively cancelling severity level filtering. In addition, the drop-down list that is to the right of the severity check boxes can be used to include the following special severity coded alarms and events in the plot: • *NA*, to include alarms/events with "non-alarm" severity levels • *NR*, to include alarms/events with "not reported" severity levels • *SC*, to include alarms/events with "standing condition" severity levels • *TC*, to include alarms/events with "transient condition" severity levels • *OTHERS*, to include any other alarms/events not otherwise included in the drop-down list • *CL*, to include alarms/events with "cleared" severity levels • *NONE* (choose this if no special alarms/events are to be included)

Print the Fault Analysis Plot - Web-Based User Sessions

Procedure U explains how to print the Fault Analysis plot when a web-based user session is active, that is, when the Fault Analysis dialog box was invoked from the Launch Pad. If the current user session is X Windows-based, use Procedure V instead.

Procedure U. Print the Fault Analysis Plot - Web-Based User Sessions

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Invoke the Fault Analysis dialog box if it is not already open. Refer to Procedure S, above, for information on how to invoke the Fault Analysis dialog box.
2	Click the Refresh button, if desired, to refresh the fault analysis plot.
3	Click the Print button to invoke the Print dialog box.
4	In the Print dialog box, modify the printer settings as desired to select a printer, change page orientation, quantity, etc., then click OK to print the Fault Analysis dialog box.
End of Procedure	

Print the Fault Analysis Plot - X Windows-Based User Sessions

Procedure V explains how to print the Fault Analysis plot when an X Windows-based user session is active, that is, when the Fault Analysis dialog box was invoked from the Openview Synchronization Map. If the current user session is Web-based, use Procedure U instead.

Procedure V. Print the Fault Analysis Plot - X Windows-Based User Sessions

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Invoke the Fault Analysis dialog box if it is not already open. Refer to Procedure S, above, for information on how to invoke the Fault Analysis dialog box.
2	Click the Refresh button, if desired, to refresh the fault analysis plot.
3	Click the Print button to invoke the Printer Chooser dialog box.
4	In the Printer Chooser dialog box, choose the name of the printer to which the plot is to be printed, then click OK. When OK is clicked, the Page Setup dialog box appears.
5	In the Page Setup dialog box, choose the appropriate page-related settings, then click OK. When OK is clicked, the Print Job dialog box appears.

Procedure V. Print the Fault Analysis Plot - X Windows-Based User Sessions (cont'd)

Step	Action
6	In the Print Job dialog box, enter the name for the document into the "Document Name" field, make other selections as is appropriate, then click the Print button. When the Print button is clicked, the message "Print capture beginning. Don't move or occlude window until done" appears.
7	Click OK to dismiss the message and initiate the print capture. The print capture will complete almost instantaneously, then, the message "Print capture complete" appears.
8	Click OK to dismiss the message and print the Fault Analysis dialog box.
	End of Procedure

Alarm Management

All alarm management tasks are performed within the Alarm Viewer dialog box. The Alarm Viewer presents a summary of active alarms Standing Condition of Non-Alarm condition on managed NEs. Figure 16 and Table O briefly explain the Alarm Viewer dialog box.

Figure 16. Alarm Viewer Dialog Box

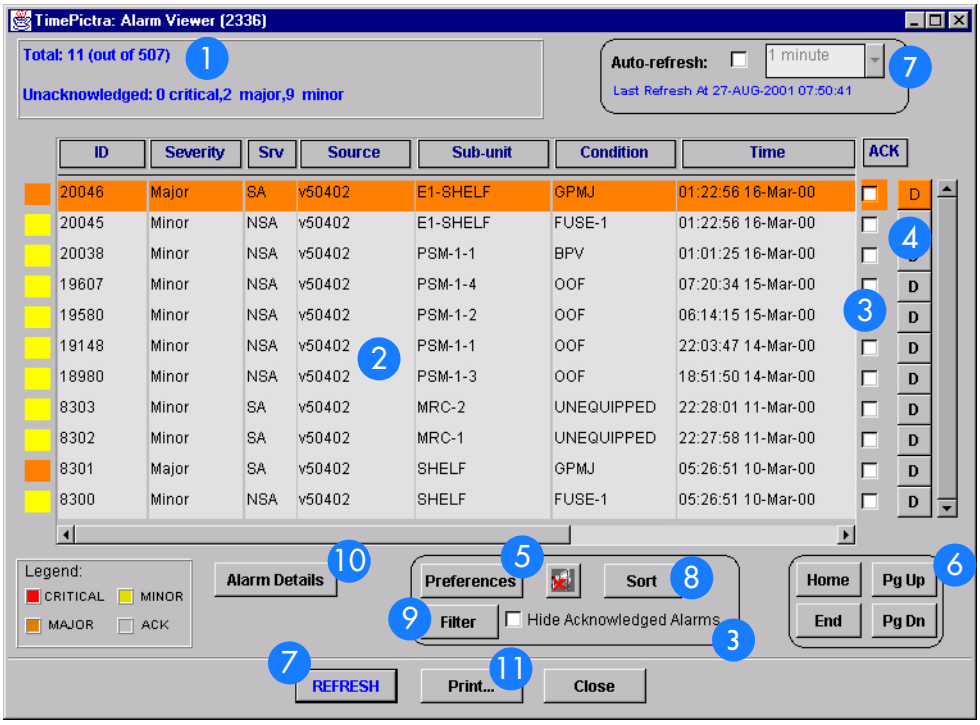


Table O. Alarm Viewer Dialog Box Description

Item	Description
1	This area shows the following: Total: n (out of N) Where n is the number of alarms in the display after application of filtering criteria as well as restrictions on the specific alarms displayed as imposed by the user's domain. N is the total number of currently active alarms in the database. This area also shows the number of unacknowledged critical, major, and minor alarms.

Table O. Alarm Viewer Dialog Box Description (cont'd)

Item	Description
2	This area of the Alarm Viewer display contains the listing of outstanding alarms, that is, those alarms that have not expired, or been discharged or cleared. The left-most column is color-coded to show the severity of the alarms. The legend is at the bottom left of this area. The actual alarms displayed, as well as the order in which they are displayed, is subject to the sort and filtering criteria that has been set. Refer to the task *View the Alarm Summary* for an explanation of the information provided in the listing.
3	Alarm acknowledgment is a system-wide user action which signifies that a user - typically the user responsible for remedying the cause of the alarm - has observed that the alarm is occurring. An alarm is acknowledged when the "ACK" check-box for the alarm is selected. When an alarm is acknowledged, the name of the user who acknowledged it appears in the "Alarm Details" dialog box, and the color-coded square in the left-most column of the alarm list becomes colorless. Selecting the "Hide Acknowledged Alarms" check-box hides all alarms in the list that have been acknowledged, so that only non-acknowledged alarms appear.
4	The discharging of an alarm is a system-wide user action that effectively clears an active alarm from the Alarm Viewer and moves it to the Event Log dialog box. A discharged alarm is tagged in the database with the time it was discharged as well as the user who discharged it, and name of the user who discharged it and the time will appear in the "Event Details" dialog box (which is invoked from the Event Log dialog box). Alarms must first be acknowledged before they can be discharged. Alarms can be discharged by clicking the associated D button.
5	Clicking the Preferences... button calls up a dialog box in which you can set parameters related to audio notification for alarms. When audio notification is activated, the TimePictra client will produce an audio beep as long as there are one or more unacknowledged alarms in the Alarm Viewer that are at or above the severity level set in the dialog box. The audio notification enable/disable button, which is to the right of the Preferences... button, can be clicked to enable or disable the beep. The audio notification feature is active only when the Alarm Viewer is open. Refer to the task *Set Audio Notification for Unacknowledged Alarms* for more information.
6	The number of outstanding alarms can exceed the number of alarms that can be displayed in the Alarm Viewer at any one time. When that is the case, the Home, Pg Up (page up), Pg Dn (page down), and End buttons as well as the vertical scroll bar can be used to view them. The horizontal scroll bar can be used to view fields in the alarm listing that are hidden from view.
7	The auto-refresh interval determines the frequency at which the Alarm Viewer is automatically updated. Auto-refresh is active when the "Auto-refresh" check-box is selected, and one of several refresh intervals - ranging from 20 seconds to 1 hour - can be chosen from the adjacent drop-down list. The Alarm Viewer can also be updated at any time by clicking the REFRESH button.
8	Clicking the Sort... button calls up a dialog box in which you can choose the order in which alarms are displayed in the Alarm Viewer. Refer to the task *Sort Alarms for Display in the Alarm Viewer Dialog Box* for more information.
9	Clicking the Filter... button calls up a dialog box in which you can choose the filtering criteria that determines which alarms are displayed in the Alarm Viewer. Refer to the task *Display Only Certain Alarms Using the Filter Function* for more information.

Table O. Alarm Viewer Dialog Box Description (cont'd)

Item	Description
10	Clicking the Alarm Details... button calls up a dialog box in which you can view the details of the alarm that is selected in the Alarm Viewer. Refer to the task *View Details of a Specific Alarm* for more information.
11	Clicking the Print... button calls up a previewer from which you can view a formatted PDF report of the alarms over the Web, and print the alarm report to a printer. Refer to the task *Create an Alarm Report* for more information.

View the Alarm Summary

Procedure W explains how to view the alarm summary.

Procedure W. Viewing the Alarm Summary

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the network element from which you want to view the alarms, if desired. *Note:* If *no* network element is selected in the synchronization network map or Launch Pad prior to invoking the Alarm Viewer dialog box, the message `Can not filter alarms/events for the domains selected as targets` will be displayed. After clicking OK in the message box, the Alarm Viewer will display the alarms from all network elements that are in the user's domain.
2	Invoke the Alarm Viewer dialog box: *Synchronization Map* - Click on TimePictra>Faults>Alarm Viewer *Launch Pad* - Click the Alarm Viewer... shortcut icon, or choose Alarm Viewer... from the Faults menu. The Alarm Viewer dialog box shows a summary of the active alarms as determined by the sort and filtering criteria, which can be modified to suit your needs (refer to the related tasks in this chapter to change the sort and filtering criteria for alarms).
3	If the number of alarms exceeds the number of alarms that can be displayed in the Alarm Viewer, use the Home, Pg Up, Pg Dn, and End buttons as well as the vertical scroll bar to view them. Alarm summary information is presented in tabular format. The information provided for each alarm is summarized in Table P.
End of Procedure	

Table P. Alarm Summary Information

Field[a]	Description
ID	The identification number assigned to the alarm. Identification numbers are assigned sequentially by the software in the order in which they are received.
Severity	Indicates the severity level of the alarm. The severity level shown here is the value that is assigned at the NE. The severity value can be Critical, Major, or Minor. The severity level is also color-coded in the left-most column of the display.

Table P. Alarm Summary Information (cont'd)

Field[a]	Description
Srv	Indicates whether or not telecommunications service is likely to be affected by the condition that caused the alarm (SA means service is likely to be affected, NSA means service is not likely to be affected).
Source	Indicates the NE that generated the alarm.
Sub-unit	This indicates the equipment (card or sub-assembly), and if applicable, channel that generated the alarm.
Condition	The code that indicates the type of alarm condition.
Time	Indicates the date and time at which the NE originated the alarm (the time is supplied by the NE; it is not derived by the software).
Description	A one line description of the alarm.
ACK	A check-box that can be selected to acknowledge the alarm or de-selected to unacknowledge it.
Discharge Alarm (D)	A button that can be clicked to discharge the alarm. *Note:* An alarm must first be acknowledged before it can be discharged.

a.Use the horizontal scroll bar if necessary to view fields that are hidden from view.

Acknowledge Alarms

Note: Users of the User, Administrator, and Security classes can perform this procedure.

Alarms occur as a result of conditions within the synchronization network, such as when NE hardware fails or malfunctions. The problems that cause alarms can cause immediate or delayed adverse effects within the telecommunications network. An alarm might require corrective action to be taken.

Alarm acknowledgment is a user action which signifies that a user has observed that the alarm is occurring. It is typically the responsibility of the user who acknowledges an alarm to take action as is necessary to ensure that the alarm's cause is remedied. When an alarm is acknowledged, the name of the user who acknowledged it appears in the Alarm Details dialog box.

Alarms are acknowledged from within the Alarm Viewer dialog box.

- In the Alarm Viewer dialog box, select the check-box in the "ACK" column that is adjacent to the alarm being acknowledged.

Note that the color-coded square in the left-most column of the alarm listing becomes colorless. The alarm is now acknowledged and will remain in the acknowledged state until it is unacknowledged or until it is cleared or discharged and moved to the Event Log dialog box.

Note: If you wish to filter acknowledged alarms so that they do not appear in the Alarm Viewer, you can select the “Hide Acknowledged Alarms” check-box. Note that if the “Hide Acknowledged Alarms” check-box is selected, alarms will disappear from the alarm listing as soon as they are acknowledged.

- To unacknowledge an alarm, de-select the “ACK” check-box.

Note: An alarm can be unacknowledged only by the user who acknowledged it.

The color-coded square now reverts to the color that signifies the severity of the alarm. It also signifies that the alarm has not yet been resolved.

Discharge Alarms

Note: Users of the Administrator and Security classes can perform this procedure.

The discharging of an alarm is a user action that effectively clears the alarm from the Alarm Viewer and moves it to the Event Log dialog box. An alarm can be discharged when the user knows that the problem being signified by the alarm has been resolved, but the alarm did not clear.

Note: A user can discharge an alarm only after the alarm has been acknowledged.

Alarms are discharged from within the Alarm Viewer dialog box.

- To discharge an alarm, ensure that it has been acknowledged, then click the associated D button that is in the rightmost column of the alarm listing.

Note: Once the alarm is discharged, it will disappear from the alarm listing. The discharge operation cannot be reversed.

Set Audio Notification for Unacknowledged Alarms

When audio notification is active, the TimePictra client will produce an audio beep as long as there are one or more unacknowledged alarms in the Alarm Viewer that are at or above the severity level set. The audio notification feature is active only when the Alarm Viewer is open, and only for alarms that appear in the dialog box (notification will not sound for alarms that are outstanding but currently filtered so as not to appear in the Alarm Viewer).

Procedure X explains how to set audio notification for unacknowledged alarms.

Procedure X. Setting Audio Notification for Unacknowledged Alarms

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Click the Preferences... button that is in the Alarm Viewer dialog box to call up the Alarm Viewer:Preferences dialog box.
2	To enable audio notification, click the "Enable Audio Notification" check-box so that it is selected (audio notification is disabled by default whenever the Alarm Viewer is first opened). *Notes:* 1. As an alternative to the above step, you can click the audio notification enable/disable button that is to the right of the Preferences... button in the Alarm Viewer. 2. If audio notification is currently not enabled, and you are enabling it from within the Alarm Viewer:Preferences dialog box, it will not start until after OK is clicked.
3	Under "Severity Threshold for Notification," choose the severity levels for which you want the audio notification to sound. If you want the audio notification to sound only if there is at least one unacknowledged critical alarm in the Alarm Viewer, choose "CRITICAL only." If you want the audio notification to sound if there are unacknowledged critical or major alarms, choose "MAJOR and above." If you want the audio notification to sound if there are unacknowledged critical, major, or minor alarms, choose "MINOR and above."
4	Click OK to close the Alarm Viewer:Preferences dialog box and activate the audio notification. The audio notification will be active as long as the current instance of the Alarm Viewer dialog box is open, or until it is disabled.
End of Procedure	

Sort Alarms for Display in the Alarm Viewer Dialog Box

The software provides a sorting function by which alarms can be sorted into groupings according to the user's preferences. As an example, a sort can take place whereby alarms are sorted by Severity, or by Time. You choose the criteria as well as the order in which the criteria are applied

Procedure Y explains how to sort alarms for display in the Alarm Viewer dialog box.

Procedure Y. Sorting Alarms for Display in the Alarm Viewer Dialog Box

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Click the Sort... button that is in the Alarm Viewer dialog box to call up the Alarm Sorting Criteria dialog box, then choose the sort criteria in the appropriate order. The sort criteria are as shown in Table Q (note that they do not necessarily have to be applied in the order listed in the table):
2	Choose the appropriate actions: • To apply the sort criteria, click the Apply button, then click OK to close the dialog box (alternatively, clicking OK without first clicking Apply will apply the criteria *and* close the dialog box). *Note:* When you click the Apply button, focus returns to the Alarm Viewer. If the Alarm Sorting Criteria dialog box is situated on top of the Alarm Viewer, the Alarm Viewer will eclipse it, giving the appearance that the Alarm Sorting Criteria dialog box closed, when it did not. • To exit the Alarm Sorting Criteria dialog box without changing the current sort criteria, click the Cancel button *before* clicking Apply. • To restore the sort order to the default state, which is by Event Number in descending order, click the Restore Defaults button, then click OK.
3	User can sort by individual column by clicking on respective column label.
End of Procedure	

Table Q shows the sort criteria.

Table Q. Alarm Sorting Criteria

Sort Criteria	Description
Event Number	The event number (ID) for the event. Event numbers can be sorted on this field in either ascending or descending numeric order.
Time	The time at which an alarm occurred. Alarms can be sorted on this field from the oldest to most recent (newest) alarms, or vice versa.
Severity	The severity rating of an alarm. Alarms can be sorted on this field in either ascending or descending order of severity, which is Critical (highest severity), Major, Minor, and Cleared/None (lowest severity).
Condition Type	The preassigned type code for the event. Alarms can be sorted on this field in either ascending or descending alphanumeric order.
Source	The CLLI code of the NE that generated the alarm (NEs are assigned a CLLI code when they are first added to the containment tree or map). Alarms can be sorted on this field in either ascending or descending alphanumeric order.
Sub-Unit	The equipment (card or subassembly) within the NE that generated the alarm. Alarms can be sorted on this field in either ascending or descending alphanumeric order.
Status	The acknowledgment status of the alarm. Alarms can be sorted on this field first by acknowledged alarms then by unacknowledged alarms, or vice versa.

Display Only Certain Alarms Using the Filter Function

A variety of filtering criteria can be applied to the alarms as they are displayed in the Alarm Viewer dialog box.

Procedure Z explains how to display certain alarms using the filter function.

Procedure Z. Displaying Certain Alarms Using the Filter Function

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Click the Filter... button that is in the Alarm Viewer dialog box to call up the Alarm Filtering Criteria dialog box, then choose the desired filtering criteria. Filtering criteria are explained in Table R.
2	Choose the appropriate actions: • To save the filtering criteria so that they can be used at a later time, click the Save button. The last filtering criteria saved in this manner can always be recalled by clicking the Restore button. Filtering criteria *saved* in this manner are saved in the database for the current user and will be automatically restored and applied whenever an instance of the Alarm Viewer (or Event Log) is invoked by the user. • To apply the filtering criteria, click the Apply button, then click OK to close the dialog box (alternatively, clicking OK without first clicking Apply will apply the criteria and close the dialog box). Filtering criteria *applied* in this manner are not saved to the database, hence they apply only for the current instance of the Alarm Viewer. *Note:* When you click the Apply button, focus returns to the Alarm Viewer. If the Alarm Filtering Criteria dialog box is situated on top of the Alarm Viewer, the Alarm Viewer will eclipse it, giving the appearance that the Alarm Filtering Criteria dialog box closed, when it did not. • To exit the Alarm Filtering Criteria dialog box without changing the current filtering criteria, click the Cancel button *before* clicking Apply.
End of Procedure	

Table R explains the filtering criteria.

Table R. Alarm Filtering Criteria

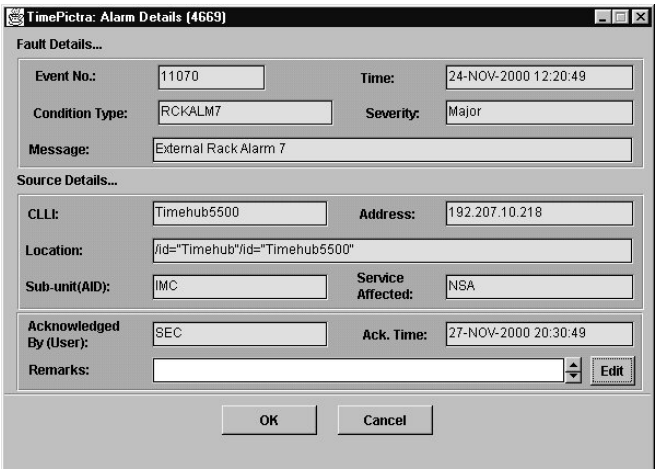
Filtering Criteria	Description
Show	The All Alarms button is a convenient way of effectively cancelling filtering so that all active alarms in the database are shown.
Time	Alarms can be filtered so that only those occurring within a specified time frame are displayed. Under "Time," modify the dates and times shown so that they reflect the beginning and end of the desired time frame (be sure to use the format as shown). Alternatively, click the First Alarm or Last Alarm button to set the beginning or end of the time frame to ensure that the first or last alarm in the log is displayed. (The format is *DD-MON-YYYY HH:MN* where *DD* is the day, *MON* is a three letter representation of the month, *YYYY* is the year, *HH* is the hour in 24-hour format, and *MN* is the minutes).
Network Elements	Alarms can be filtered so that active alarms from all NEs are displayed, only active alarms emanating from NEs at certain locations are displayed, or active alarms emanating from selected NEs are displayed. Under "Network Elements," select the appropriate radio button: • *All*, to display active alarms from all NEs. • *Select*, to display active alarms emanating from NEs at certain locations, or active alarms emanating from selected NEs. If the "Select" radio button was selected, click Filter... to call up the "Network Element Filter" dialog box. In that dialog box, select the desired locations (sub-networks) under "Locations" to show all of the network elements contained in those sub-networks in the "Available Network Elements" scroll box. To select network elements, select them in the "Available Network Elements" scroll box, click > to transfer them to the "Selected Network Elements" scroll box, or >> to transfer all items to the "Selected Network Elements" scroll box, then click OK to add the selected items to the filtering criteria. *Note:* Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons
Event Types	Alarms can be filtered so that active alarms of all types are displayed, or only active alarms of specified types are displayed. Under "Event Types," select the appropriate radio button: • *All*, to display active alarms of all types. • *Select*, to display only active alarms of specified types. If the "Select" radio button was selected, click Filter... to call up the "Condition Type Filter" dialog box. In that dialog box, select the NE type from the NE Type field, select those event types in the left-hand scroll box (Condition Types) from which you want to filter alarms, click > to transfer the selected items to the right-hand scroll box (Selected Condition Types) or >> to transfer all items to the right-hand scroll box. Repeat the operation for different NE types, then click OK to add the selected items to the filtering criteria. *Note:* Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons
Severity	Alarms can be filtered so that only alarms of specified severity levels are displayed. Selecting one or more severity level check-boxes will cause alarms of those severity levels to be displayed. Clicking the All button causes alarms of all severity levels to be displayed, effectively cancelling severity level filtering.

View Details of a Specific Alarm

Note: Users of the User, Administrator, and Security classes can perform this procedure.

Click on an alarm in the Alarm Viewer dialog box to select it, then click the Alarm Details... button to call up the Alarm Details dialog box. The Alarm Details dialog box appears similar to Figure 17.

Figure 17. Alarm Details Dialog Box



The Alarm Details dialog box shows more detailed information for the selected alarm. The information in Table S is provided *in addition to* the summary information given in the Alarm Viewer dialog box.

Note: If the associated alarm is discharged or cleared while the Alarm Details dialog box is opened, details for the next alarm in the list will be displayed.

Table S. Alarm Details

Field	Description
Acknowledged By (User)	The name of the user who has acknowledged the alarm.
Ack. Time	The time that the alarm was acknowledged.
Address	The network address of the NE that generated the alarm.
Location	The FDN (fully distinguished name) of the NE that generated the alarm. *Note:* "FDN" is a string that identifies the position of the network element within the management tree from the root of the tree.
Remarks	Additional descriptive text that can be entered and edited by the user.

To edit the “Remarks” field, click the Edit button, type in the additional descriptive information into the Enter Remarks box that appears, and click OK.

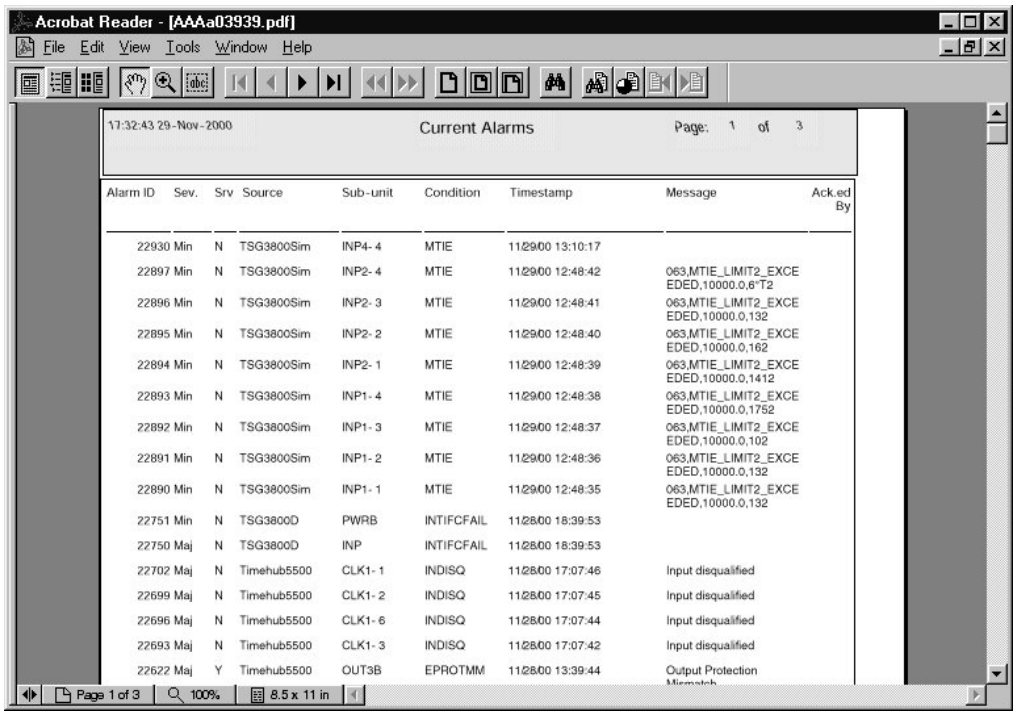
To close the Alarm Details dialog box and accept the edited remarks, click OK. To close the dialog box without accepting the remarks, click Cancel.

Create an Alarm Report

The information displayed in the Alarm Viewer can be viewed as a formatted Alarm Report, and printed to a printer. Procedure AA explains how to create an alarm report.

Procedure AA. Creating an Alarm Report

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Ensure that the sorting and filtering criteria are set appropriately so that the desired alarms are displayed in the Alarm Viewer. Only those alarms shown in the Alarm Viewer will be included in the Alarm Report. Refer to the procedures *Sort Alarms for Display in the Alarm Viewer Dialog Box* and *Display Only Certain Alarms Using the Filter Function* in this chapter.
2	Click the Print... button in the Alarm Viewer dialog box. When the Print... button is clicked, a question box appears containing the question `X alarm records will be printed. A large number of records will take a long time to print. Do you want to proceed?`

Step	Action
3	Click Yes to invoke the report previewer, or No to cancel the operation. The report previewer is a separate invocation of the Web browser containing the Acrobat® Reader either as a plug-in to the browser, or as a helper application (separate from the browser). The formatted Alarm Report is in PDF (portable document format) and appears similar to the following figure:  Acrobat Reader - [AAAa03939.pdf] File Edit View Tools Window Help 17:32:43 29-Nov-2000 Current Alarms Page: 1 of 3 Alarm ID Sev. Srv Source Sub-unit Condition Timestamp Message Ack.ed By 22930 Min N TSG3800Sim INP4-4 MTIE 11/29/00 13:10:17 22897 Min N TSG3800Sim INP2-4 MTIE 11/29/00 12:48:42 063,MTIE_LIMIT2_EXCEEDED,10000.0,6"T2 22896 Min N TSG3800Sim INP2-3 MTIE 11/29/00 12:48:41 063,MTIE_LIMIT2_EXCEEDED,10000.0,132 22895 Min N TSG3800Sim INP2-2 MTIE 11/29/00 12:48:40 063,MTIE_LIMIT2_EXCEEDED,10000.0,162 22894 Min N TSG3800Sim INP2-1 MTIE 11/29/00 12:48:39 063,MTIE_LIMIT2_EXCEEDED,10000.0,1412 22893 Min N TSG3800Sim INP1-4 MTIE 11/29/00 12:48:38 063,MTIE_LIMIT2_EXCEEDED,10000.0,1752 22892 Min N TSG3800Sim INP1-3 MTIE 11/29/00 12:48:37 063,MTIE_LIMIT2_EXCEEDED,10000.0,102 22891 Min N TSG3800Sim INP1-2 MTIE 11/29/00 12:48:36 063,MTIE_LIMIT2_EXCEEDED,10000.0,132 22890 Min N TSG3800Sim INP1-1 MTIE 11/29/00 12:48:35 063,MTIE_LIMIT2_EXCEEDED,10000.0,132 22751 Min N TSG3800D PWRB INTIFCFAIL 11/28/00 18:39:53 22750 Maj N TSG3800D INP INTIFCFAIL 11/28/00 18:39:53 22702 Maj N Timehub5500 CLK1-1 INDISQ 11/28/00 17:07:46 Input disqualified 22699 Maj N Timehub5500 CLK1-2 INDISQ 11/28/00 17:07:45 Input disqualified 22696 Maj N Timehub5500 CLK1-6 INDISQ 11/28/00 17:07:44 Input disqualified 22693 Maj N Timehub5500 CLK1-3 INDISQ 11/28/00 17:07:42 Input disqualified 22622 Maj Y Timehub5500 OUT3B EPROTMM 11/28/00 13:39:44 Output Protection Page 1 of 3 100% 8.5 x 11 in *Note:* By default, the software displays the Alarm Report, which is generated in PDF format, using the Acrobat® Reader (version 5.0 and above) as a plug-in or helper to the browser. If the Acrobat Reader is not already installed on your client, you can obtain it from Adobe Systems Incorporated.
4	Use the controls of the Acrobat Reader to navigate, save, or print the Alarm Report.

End of Procedure

Event Management

All event management tasks are performed within the Event History Log dialog box. The Event History Log presents a summary of expired, discharged, and cleared alarms, and all other non-alarm events. Figure 18 and Table T explain the Event History Log dialog box.

Note: Expired, discharged, and cleared alarms, as well as other non-alarm events, are all generally referred to as events in this section.

Figure 18. Event History Log Dialog Box

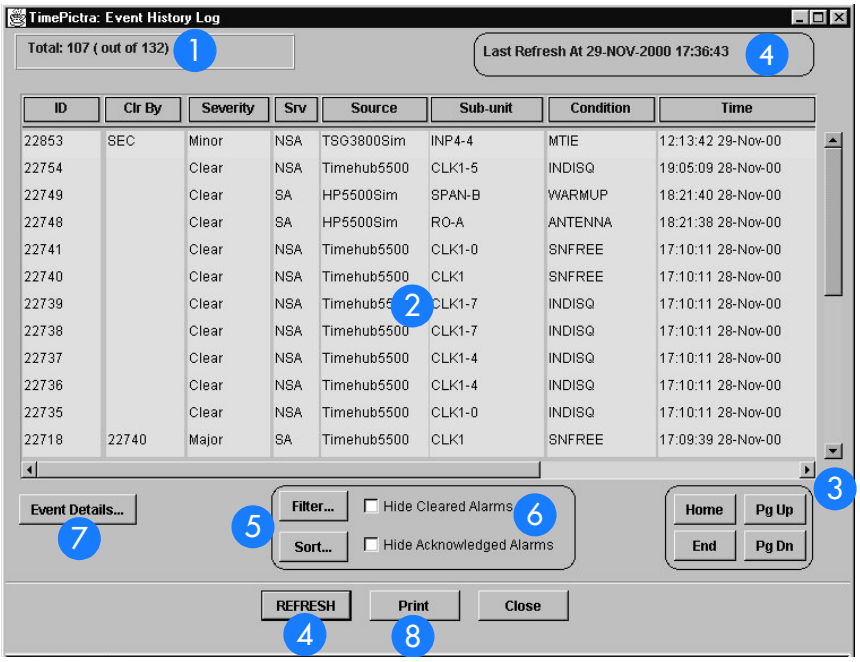


Table T. Event Log Dialog Box Description

Item	Description
1	This area shows the following: Total: n (out of N) Where n is the number of events in the display after application of filtering criteria as well as restrictions on the specific events displayed as imposed by the user's domain. N is the total number of events currently in the TimePictra database.
2	This area of the Event History Log contains the listing of non-alarm events, as well as alarms that have expired or been discharged or cleared. The actual events displayed, as well as the order in which they are displayed, is subject to the sort and filtering criteria that has been set. Refer to the task *View the Event History Log* for an explanation of the information provided in the listing.

Table T. Event Log Dialog Box Description (cont'd)

Item	Description
3	The number of events will often exceed the number of events that can be displayed in the Event History Log at any one time. When that is the case, the Home, Pg Up (page up), Pg Dn (page down), and End buttons as well as the vertical scroll bar can be used to view them. *Note:* Operations using these navigation buttons (especially the End button) might take longer to complete if the number of events included in the dialog box is greater than 50,000. The horizontal scroll bar can be used to view fields in the event listing that are hidden from view.
4	The Event History Log dialog box is not automatically updated. Clicking the REFRESH button, however, updates the Event History Log dialog box so that it reflects the events stored in the database at that instant. The time and date when the log was last refreshed is shown in the upper right corner of the dialog box.
5	Clicking the Sort... button calls up a dialog box in which you can choose the order in which events are displayed in the Event History Log dialog box. Refer to the task *Sort Events for Display in the Event History Log Dialog Box* for more information. Clicking the Filter... button calls up a dialog box in which you can choose the filtering criteria that determines which events are displayed in the Event History Log dialog box. Refer to the task *Display Only Certain Events Using the Filter Function* for more information.
6	Selecting the "Hide Acknowledged Alarms" check-box filters all alarms that have been acknowledged, so that only non-acknowledged alarms appear. Selecting the "Hide Cleared Alarms" check-box filters all alarms that had been cleared from the Alarm Viewer.
7	Clicking the Event Details... button calls up a dialog box in which you can view the details of the event that is selected in the Event History Log dialog box. Refer to the task *View Details of a Specific Alarm or Event* for more information.
8	Clicking the Print... button calls up a previewer from which you can view a formatted PDF report of the events over the Web, and print the event report to a printer. Refer to the task *Create an Event History Log Report* for more information.

View the Event History Log

Procedure AB explains how to view the Event History Log.

Procedure AB. Viewing the Event History Log

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the network element from which you want to view the events, if desired. *Note:* If *no* network element is selected in the synchronization network map or Launch Pad prior to invoking the Event History Log dialog box, the Event History Log dialog box will display the events from all network elements that are in the user's domain, if no other filtering is applied.
2	Invoke the Event History Log dialog box: *Synchronization Map* - Click on TimePictra>Fault>Event History Log. *Launch Pad* - Click the Event History Log... shortcut icon, or choose Event History log... from the Faults menu. The Event History Log dialog box shows a summary of expired, discharged, and cleared alarms, and all other non-alarm events. The events displayed are subject to the sort and filtering criteria, which can be modified to suit your needs (refer to the related tasks in this chapter to change the sort and filtering criteria for events).
3	If the number of events exceeds the number of events that can be displayed in the Event History Log dialog box, use the Home, Pg Up, Pg Dn, and End buttons as well as the vertical scroll bar to view them. *Note:* Operations using the navigation buttons (Home, Pg Up, Pg Dn, and End) might take longer to complete if the number of events included in the dialog box is greater than 50,000. Event summary information is presented in tabular format. The information provided for each event is summarized in Table U:
End of Procedure	

Table U summarizes the information for each event.

Table U. Event Summary Information

Field	Description
ID	The identification number assigned to the event. Events are assigned this number as they are logged.
Clr By	When an alarm is logged, it is assigned an event number (see above). When that alarm is subsequently cleared, a clearing event is generated, which is assigned its own event number. The event number of the clearing event appears in this column of the record for the original alarm. If an event is discharged by a user, the user's username will appear in this field.
Severity	Indicates the original severity level of the event. Severity can be Critical, Major, Minor, Non-Alarm, or Clear.
Srv	Indicates whether or not telecommunications service is likely to be affected by the condition that caused the event (SA means service is likely to be affected, NSA means service is not likely to be affected).
Source	Indicates the NE that generated the event.
Sub-unit	This indicates the equipment (card or sub-assembly), and if applicable, channel that generated the event.
Condition	The code that indicates the type of event.
Time	Indicates the date and time at which the event occurred.
Description	A one line description of the event.

Notes:

1. Use the horizontal scroll bar if necessary to view fields that are hidden from view.
2. The time shown in this field is the time supplied by the originator of the event. For example, if a clearing event is generated by a NE, then the time is as supplied by the NE. If a clearing event is TimePictra generated, then the time is as supplied by the system.
3. If a clearing event is system generated during alarm synchronization, then the description text will contain the message `Cleared By System`.

Sort Events for Display in the Event Log History Dialog Box

The software provides a sorting function by which events can be sorted into groupings according to the user's preferences. As an example, a sort can take place whereby events are sorted by severity rating, or by time. You choose the criteria as well as the order in which the criteria are applied.

Procedure AC explains how to sort events for display in the Event History Log.

Procedure AC. Sorting Events for Display in the Event History Log Dialog Box

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Click the Sort... button that is in the Event History Log dialog box to call up the Event Sorting Criteria dialog box, then choose the sort criteria in the appropriate order. The sort criteria are as shown in Table V (note that they do not necessarily have to be applied in the order listed in the table). *Note:* If the number of events included in the dialog box is greater than 50,000, sorting should be done only on the Event Number field. To restrict the total number of events in the dialog box, try setting appropriate filtering criteria.
2	Choose the appropriate actions: • To apply the sort criteria, click the Apply button, then click OK to close the dialog box (alternatively, clicking OK without first clicking Apply will apply the criteria *and* close the dialog box). *Note:* When you click the Apply button, focus returns to the Event History Log. If the Event Sorting Criteria dialog box is situated on top of the Event History Log, the Event History Log will eclipse it, giving the appearance that the Event Sorting Criteria dialog box closed, when it did not. • To exit the Event Sorting Criteria dialog box without changing the current sort criteria, click the Cancel button *before* clicking Apply. • To restore the sort order to the default state, which is by Event Number in descending order, click the Restore Defaults button, then click OK.
End of Procedure	

Table V lists the event sort criteria.

Table V. Event Sorting Criteria

Sort Criteria	Description
Event Number	The event number for the event. Event numbers can be sorted on this field in either ascending or descending numeric order.
Time	The time at which an alarm or event occurred. Alarms and events can be sorted on this field from the oldest to most recent (newest) events, or vice versa.
Severity	The severity rating of an alarm or event. Alarms or events can be sorted on this field in either ascending or descending order of severity, which is Critical (highest severity), Major, Minor, Non-Alarm, and Clear (lowest severity).
Condition Type	The preassigned type code for the event. Events can be sorted on this field in either ascending or descending alphanumeric order.

Table V. Event Sorting Criteria (cont'd)

Sort Criteria	Description
Source	The CLLI code of the NE that generated the alarm or event (NEs are assigned a CLLI code when first added to the containment tree). Alarms and events can be sorted on this field in either ascending or descending alphanumeric order.
Sub-unit	The equipment (card or sub-assembly) within the NE that generated the alarm or event. Alarms and events can be sorted on this field in either ascending or descending alphanumeric order.
Status	The clearing status of an alarm. Alarms can be sorted on this field first by those alarms that have been cleared, or those alarms that have not been cleared.

Display Only Certain Events Using the Filter Function

A variety of filtering criteria can be applied to the alarms and events as they are displayed in the Event History Log dialog box.

Procedure AD explains how to display certain events using the filter function.

Procedure AD. Displaying Certain Events Using the Filter Function

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Click the Filter… button that is in the Event History Log dialog box to call up the Event Filtering Criteria dialog box, then choose the desired filtering criteria. Filtering criteria are explained in Table W.

Procedure AD. Displaying Certain Events Using the Filter Function (cont'd)

Step	Action
2	Choose the appropriate actions: • To save the filtering criteria so that they can be used at a later time, click the Save button. The last filtering criteria saved in this manner can always be recalled by clicking the Restore button. Filtering criteria *saved* in this manner are saved in the database for the current user and will be automatically restored and applied whenever an instance of the Event Log dialog box is invoked by the user. • To apply the filtering criteria, click the Apply button, then click OK to close the dialog box (alternatively, clicking OK without first clicking Apply will apply the criteria and close the dialog box). Filtering criteria *applied* in this manner are not saved to the database, hence they apply only to the current instance of the Event History Log dialog box. *Note:* When you click the Apply button, focus returns to the Event history Log. If the Event Filtering Criteria dialog box is situated on top of the Event History Log, the Event History Log will eclipse it, giving the appearance that the Event Filtering Criteria dialog box closed, when it did not. • To exit the Event Filtering Criteria dialog box without changing the current filtering criteria, click the Cancel button *before* clicking Apply.
	End of Procedure

Table W explains the event filtering criteria.

Table W. Event Filtering Criteria

Filtering Criteria	Description
Show...	The All Events button is a convenient way of effectively cancelling filtering so that all events in the event log database are shown.
Time...	Alarms and events can be filtered so that only those occurring within a specified time frame are displayed. Under "Time...," modify the dates and times shown so that they reflect the beginning and end of the desired time frame (be sure to use the format as shown). Alternatively, click First Event or Last Event to set the beginning or end of the time frame to ensure that the first or last alarm or event in the log is displayed. (The format is *DD-MON-YYYY HH:MN* where *DD* is the day, *MON* is a three letter representation of the month, *YYYY* is the year, *HH* is the hour in 24-hour format, and *MN* is the minutes).

Table W. Event Filtering Criteria (cont'd)

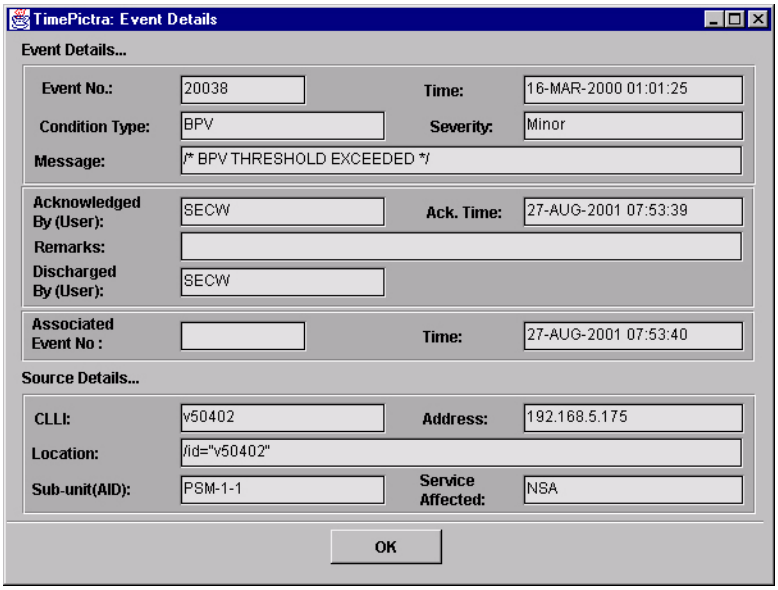
Filtering Criteria	Description
Network Elements...	Alarms and events can be filtered so that all alarms and events from the event log database are displayed, only alarms and events from the event log database emanating from NEs at certain locations are displayed, or alarms and events from the event log database emanating from selected NEs are displayed. Under "Network Elements...," select the appropriate radio button • *All*, to display all alarms and events from the event log database. • *Select*, to display alarms and events from the event log database emanating from NEs at certain locations, or alarms and events from the event log database emanating from selected NEs. If the "Select" radio button was selected, click Filter... to call up the "Network Element Filter" dialog box. In that dialog box, select the desired locations (sub-networks) under "Locations" to show all of the network elements contained in those sub-networks in the "Available Network Elements" scroll box. To select network elements, select them in the "Available Network Elements" scroll box, click > to transfer them to the "Selected Network Elements" scroll box, or >> to transfer all items to the "Selected Network Elements" scroll box, then click OK to add the selected items to the filtering criteria. *Note:* Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons
Event Types...	Events can be filtered so that alarms and events from the event log database of all types are displayed, or only alarms and events from the event log database of specified types are displayed. Under "Event Types...," select the appropriate radio button: • *All*, to display alarms and events from the event log database of all types. • *Select*, to display only alarms and events from the event log database of specified types. If the "Select" radio button was selected, click Filter... to call up the "Condition Type Filter" dialog box. In that dialog box, select those event types in the left-hand scroll box (Condition Types) from which you want to filter events, click > to transfer the selected items to the right-hand scroll box (Selected Condition Types) or >> to transfer all items to the right-hand scroll box, then click OK to add the selected items to the filtering criteria. *Note:* Items that have been transferred to the right-hand scroll box can be removed using the Remove and Remove All buttons
Severity...	Alarms and events can be filtered so that only those of specified severity levels are displayed. Selecting one or more severity level check-boxes will cause alarms or events of those severity levels to be displayed. Clicking the All button causes events of all severity levels to be displayed, effectively cancelling severity level filtering.

View Details of a Specific Event

Note: Users of the User, Administrator, and Security classes can perform this procedure.

Click on an event in the Event History Log dialog box to select it, then click the Event Details... button to call up the Event Details dialog box. The Event Details dialog box appears similar to Figure 19.

Figure 19. Event Details Dialog Box



The dialog box shows more detailed information for the selected event. The information in Table X is provided *in addition to* the summary information given in the Event History Log dialog box.

Table X. Event Details

Field	Description
Acknowledged By (User)	The name of the user who has acknowledged the alarm.
Ack. Time	The time that the alarm was acknowledged.
Remarks	Additional descriptive text that was entered by the user. The remarks cannot be edited in this dialog box.
Discharged By (User)	The name of the person who has discharged the alarm.
(*Clear*) Time	The time that the software received a message indicating that the fault was cleared.
Address	The network address of the NE that generated the alarm or event.
Location	The FDN (fully distinguished name) of the NE that generated the alarm. *Note:* "FDN" is a string that identifies the position of the network element within the management tree from the root of the tree

To close the Event Details dialog box, click OK.

Create an Event Log Report

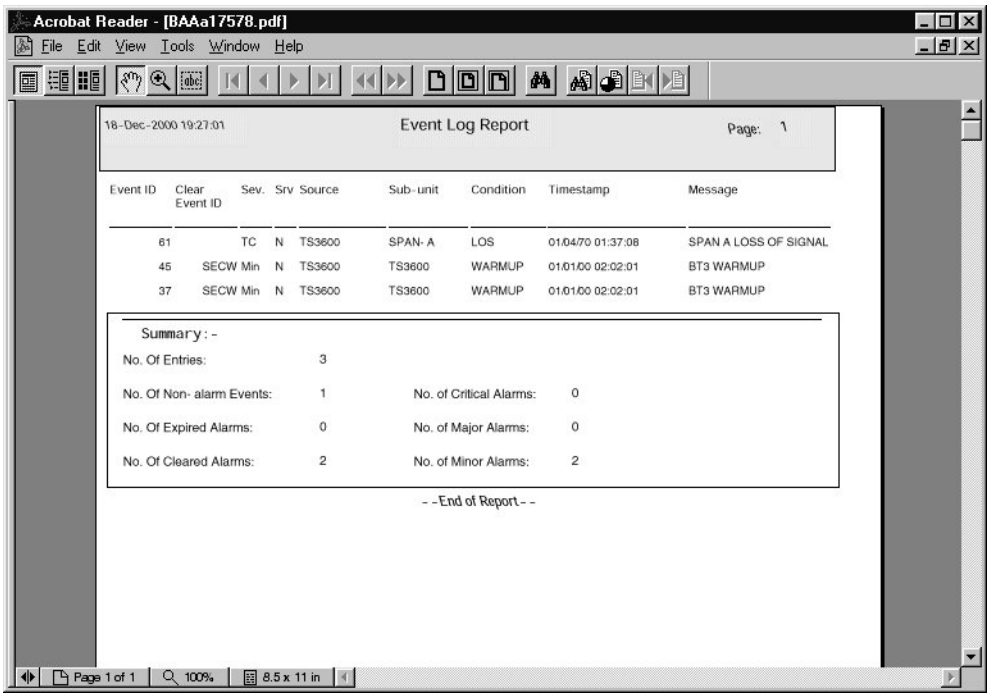
The information displayed in the Event History Log dialog box can be viewed as a formatted report, and printed to a printer.

Procedure AE explains how to create an Event Log report.

Procedure AE. Creating an Event Log Report

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Ensure that the sorting and filtering criteria are set appropriately so that the desired events are displayed in the Event History Log dialog box. Only those alarms shown in the Event History Log dialog box will be included in the Event Log Report. Refer to the procedures *Sort Events for Display in the Event History Log Dialog Box* and *Display Only Certain Events Using the Filter Function* in this chapter.
2	Click the Print... button in the Event Log dialog box. When the Print... button is clicked, a question box appears containing the question `X records will be printed. A large number of records will take a long time to print. Do you want to proceed?`

Procedure AE. Creating an Event Log Report (cont'd)

Step	Action
3	Click Yes to invoke the report previewer, or No to cancel the operation. The report previewer is a separate invocation of the Web browser containing the Acrobat® Reader as either a plug-in to the browser, or as a helper application (separate from the browser). The formatted Event History Log Report is in PDF (portable document format) and appears similar to the following figure:  *Note:* By default, the software displays the Event Report, which is generated in PDF format, using the Acrobat® Reader (version 5.0 and above) as a plug-in or helper to the browser. If the Acrobat Reader is not already installed on your client, you can obtain it from Adobe Systems Incorporated.
4	Use the controls of the PDF viewer (Acrobat Reader) to navigate, save, or print the Event report.

End of Procedure

Chapter 7

Performance Management

The procedures in this chapter explain how to view and interpret the Performance Monitor displays, and how to print the Performance Monitor display screen as well as performance reports.

Overview

Certain NEs contain performance monitoring cards that monitor and store data pertaining to the performance of distant locations providing input. This performance data can be downloaded for storage in the TimePictra database and for display.

The software can display performance measurement data as a scrollable list, and as a line or column graph. These display options are accessible through the Performance Monitor main screen.

Performance Monitor (Main Screen) dialog box

The Performance Monitor main screen dialog box is used to specify the type of performance data to be retrieved by the software. Figure 20 and Table Y briefly explain the Performance Monitor main screen dialog box.

Note: The appearance of the Performance Monitor main screen dialog box will vary somewhat from Figure 20 depending upon the NE that is selected. For instance, more Input Aid channels might be shown, or the Card field might not be present.

Figure 20. Performance Monitor (Main Screen) Dialog Box

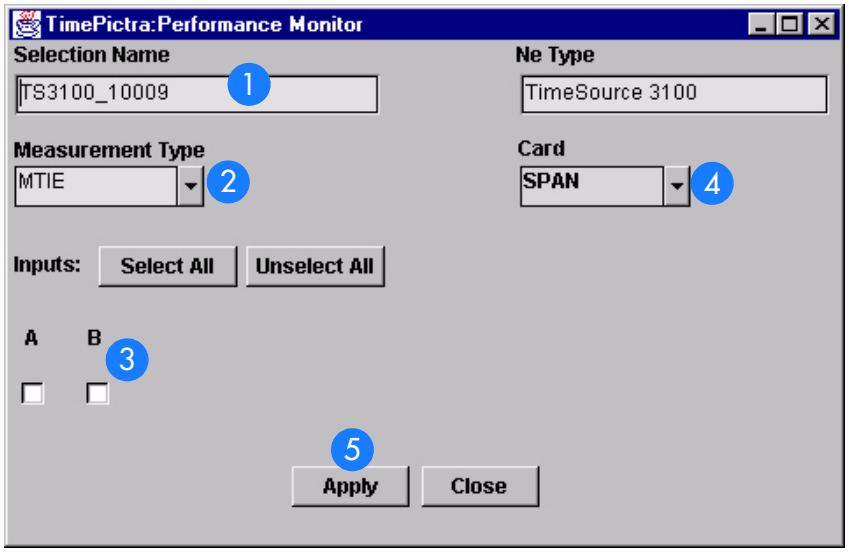


Table Y. Performance Monitor (main screen) Dialog Box Description

Item	Description
1	The CLLI code of the monitoring NE is shown here. This field cannot be edited; it reflects the CLLI code of the NE that is selected in the sychronization network map or Launch Pad when the dialog box is called up.

Table Y. Performance Monitor (main screen) Dialog Box Description (cont'd)

Item	Description
2	Performance data can be retrieved on a port-by-port basis for a specified measurement type. The measurement type is specified using the "Measurement Type" drop-down list.
3	The specification of input port is done using the "Input Aids" check-boxes (clicking the All button selects all input ports). *Note:* When the TimeHub 5500 network element is in Remote mode, CC signals are monitored. These signals are mapped to channels 10 and 11(1 PPS and 10 MHz), and in the Performance Monitor, only channels 10 and 11 will be shown here.
4	The card on which the performance data is to be collected is selected in the "Card" field.
5	Clicking the Apply button invokes the Performance Monitor Table Plot dialog box, in which you can view the retrieved data in tabular form, as well as plot it.

Measurement Types

NEs are capable of monitoring their inputs, collecting and processing performance data, and producing the results of several input performance measurements. Depending upon the particular NE selected, one or more of the following measurements will be available:

- Time Deviation (TDEV)
- Maximum Time Interval Error (MTIE)
- Maximum Relative Time Interval Error (MRTIE)
- Latest Maximum Relative Time Interval Error (LMRTIE)
- Fractional Frequency Offset (FFOFF)
- Frequency Spread (SPRD)
- 1-second raw phase data (PHASE1S)
- 1-minute raw phase data (PHASE1M)

Note: Refer to the NE documentation for full descriptions of the measurement data retrieved.

Measurements are calculated when the software retrieves the performance data from the NE (as when the Apply button in the Performance Monitor main screen dialog box is clicked). Retrieved measurement data is placed into the TimePictra database, then displayed in the Performance Monitor Table Plot dialog box.

Performance Masks

For the various measurement types, the software can display measurements against different standard performance masks.

In This Chapter

The information in this chapter can be referenced when performing performance management operations. The following sections are included in this chapter:

Performance Monitoring

This section explains how to use the performance measurement display functionality. Performance measurement data can be displayed as a scrollable list, or as a line or column graph.

Performance Reports

This section explains how to use the report functionality to produce formatted performance reports in Portable Document Format (*.pdf).

Performance Monitoring

The software provides data retrieval and display functionality for various NE-related performance measurements. The following features are available:

- Several different measurement types available for specified input channels.
- A choice of either a line, column (bar), or tabular graphical display of the measurement data, as well as a scrollable listing of the data points retrieved.
- A choice of masks as well as past performance data for inclusion in the graphical displays.

There are two dialog boxes involved specifically with performance monitoring:

Performance Monitor Table Plot dialog box

The Performance Monitor Table Plot dialog box is actually the second dialog box invoked when using the performance monitoring functions (the Performance Monitor main screen is the first dialog box invoked). This dialog box displays the performance data that has been retrieved from the NE as a scrollable list of data points. Figure 21 shows the Performance Monitor Table Plot dialog box displaying MRTIE data. Table Z explains the dialog box.

Figure 21. Performance Monitor Table Plot Dialog Box

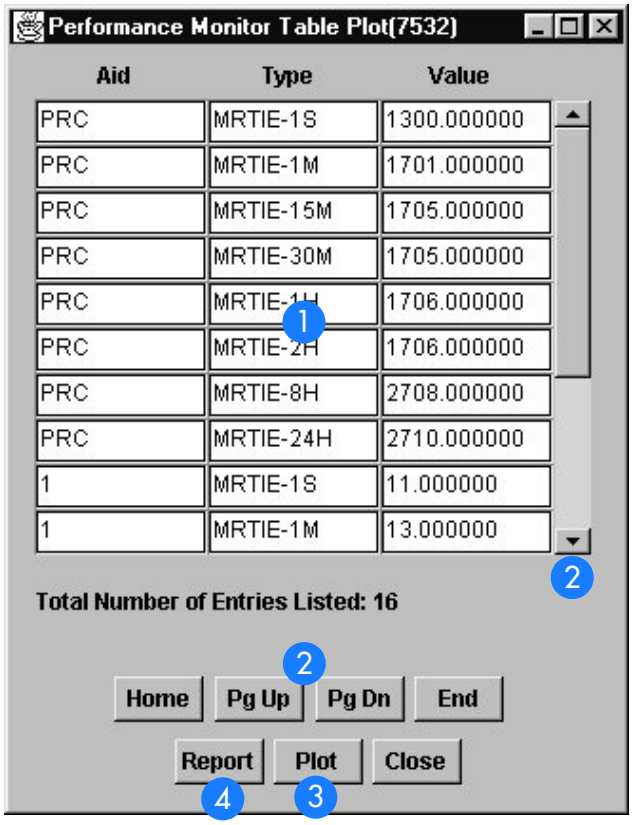


Table Z. Performance Monitor Table Plot Dialog Box Description

Item	Description
1	For each measurement data point retrieved, the Aid (port), data type, and value is displayed in this area of the dialog box.
2	The quantity of data will often exceed the data that can be displayed in the display area at any one time. When that is the case, the Home, Pg Up (page up), Pg Dn (page down), and End buttons as well as the vertical scroll bar can be used to view it.
3	Clicking the Plot button invokes the Performance Monitor display screen dialog box, in which you can view and print a line or column graph of the performance data, and view the data in tabular format.
4	Clicking the Report button calls up a previewer from which you can view a formatted PDF report of performance data over the Web, and print the report to a printer. Refer to the task *Create a Performance Report* for more information.

Performance Monitor (Display Screen) dialog box

The Performance Monitor display screen dialog box is the third dialog box accessed when using the performance monitoring functions. This dialog box displays performance data as either a line graph or column graph, and mask and past data can be added to the graphs for comparison. Figure 22 shows the Performance Monitor display screen dialog box with a line graph for an FFOFF measurement. Table AA explains the dialog box.

Figure 22. Performance Monitor (Display Screen) Dialog Box

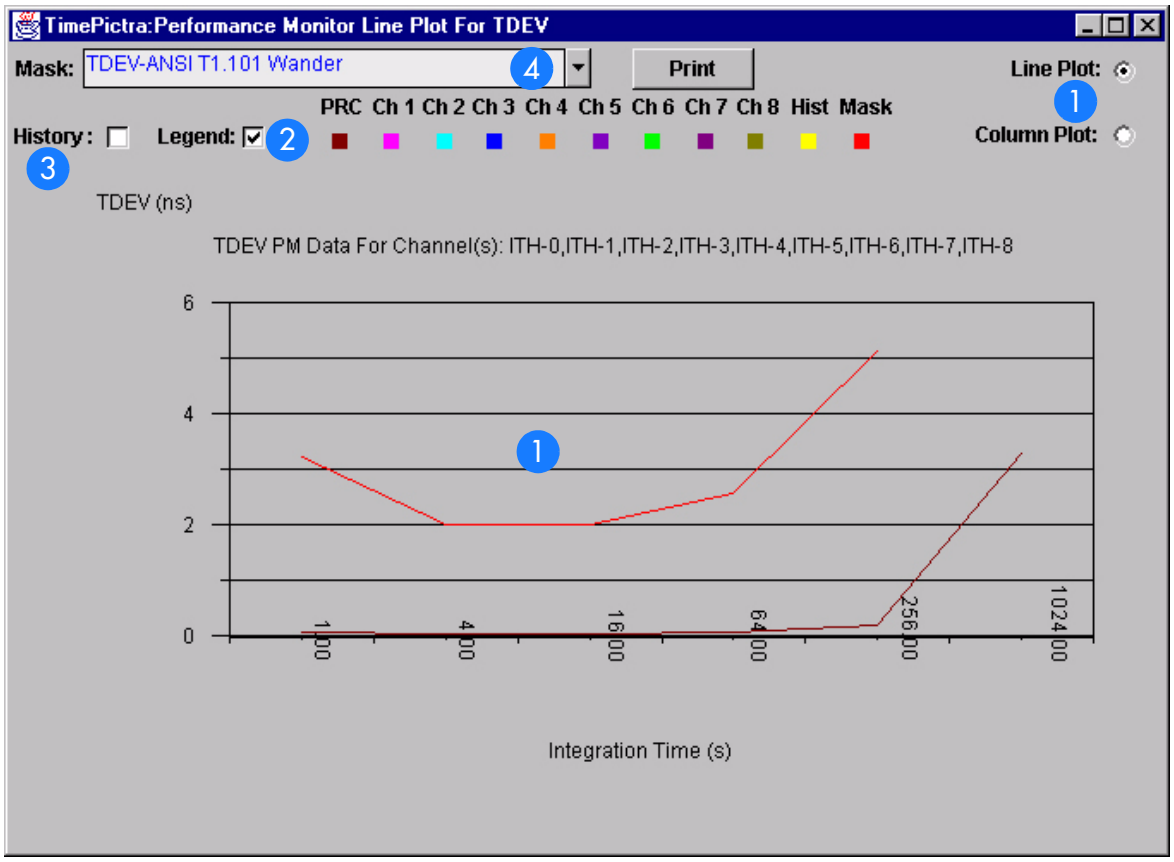


Table AA. Performance Monitor (Display Screen) Dialog Box Description

Item	Description
1	The graphical display of performance data appears in the display area of the dialog box. The type of display - column graph or line graph - is determined by the setting of the "Line Plot" and "Column Plot" radio buttons.
2	Selecting the "Legend" check-box displays a legend to the graphical display.

Table AA. Performance Monitor (Display Screen) Dialog Box Description (cont'd)

Item	Description
3	Each time the software queries a NE for measurement data, the time-stamped data is stored in the TimePictra database. This data can be recalled and added to the performance display for comparison with the current data. You can select time-stamped past performance data by selecting the "History" check-box, then selecting the data set in the dialog box that appears. Note that if the data for more than one port is being displayed, past performance monitor data cannot be displayed.
4	Performance monitor data can also be displayed against one of several standard performance masks.

Display a Performance Measurement

Procedure AF explains how to display a performance measurement.

Procedure AF. Displaying a Performance Measurement

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the network element for which you want to display the performance measurement.
2	Invoke the Performance Monitor main screen dialog box: *Synchronization Map* - Click on TimePictra>Performance: Performance Monitor. *Launch Pad* - Click the Performance Monitor… shortcut icon, or choose Performance Monitor… from the Perf menu.

Procedure AF. Displaying a Performance Measurement (cont'd)

Step	Action
3	In the Performance Monitor main screen dialog box, specify the measurement data to be retrieved from the selected NE: a. NEs are capable of performing several different measurements, and you can specify that data for a specific type of measurement be retrieved. Choose the appropriate measurement type by selecting it from the "Measurement Type" drop-down list. b. Choose the input ports from which to retrieve the performance data by selecting the appropriate "Input Aids" check-boxes (clicking the All >> button will select all ports). c. For NEs in which a card can be chosen, select the card from which the data is to be retrieved in the "Card" drop-down list. Note: If the card cannot be chosen for a given NE, the "Card" drop-down list will not appear in the dialog box. d. Click the Apply button to invoke the Performance Monitor Table Plot dialog box. The Performance Monitor Table Plot dialog box shows the set of data points that have been retrieved from the NE.
4	Click the Plot button in the Performance Monitor Table Plot dialog box to invoke the Performance Monitor display screen. By default, the Performance Monitor display screen contains a line graph of the retrieved data when it is invoked. You can choose to display the data as a column graph by selecting the "Column Plot" radio button.
5	Select the "Legend" check-box to display a legend to the graphical display.
6	If a mask is desired, select one of the provided masks in the "Mask" drop-down list.
7	If you wish to add past performance data to the display, select the "History" check-box, then choose the appropriate data for comparison from the dialog box that appears. The dialog box shows the time stamp for each past data item. Note: If data for more than one port is being displayed, past performance monitor data cannot be displayed.

End of Procedure

Performance Reports

The software provides the capability to produce formatted reports of performance data. Performance reports are generated in Portable Document Format (`*.pdf`), which can then be transferred between various computer platforms, displayed, and printed. Time filtering capability allows you to produce reports that include performance measurement data logged within a specified time frame, and the report data can be sorted in either an ascending or descending order of time.

Performance Monitor Report Inputs (Runtime Parameters) dialog box

Time filtering and sorting criteria for the report are entered into the Performance Monitor Report Inputs runtime parameters dialog box. Figure 23 and Table AB briefly explain the Performance Monitor Report Inputs runtime parameters dialog box.

Figure 23. Performance Monitor Report Inputs (Runtime Parameters) Dialog Box

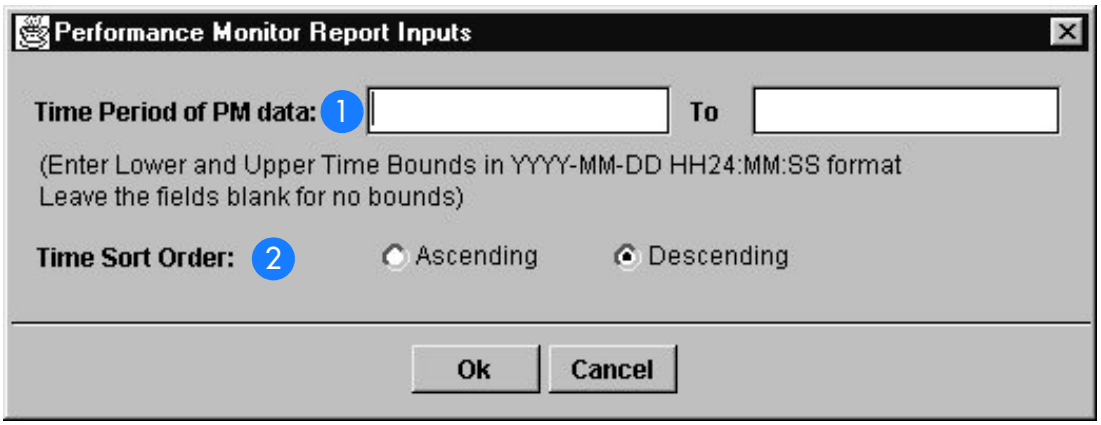


Table AB. Performance Monitor Report Inputs (Runtime Parameters) Dialog Box Description

Item	Description
1	Performance data retrieved typically represents measurement data collected over a period of time. Time information can be entered in the "Time Period of PM Data" fields to specify a subset of the retrieved data to appear in the performance report. If these fields are blank, all of the retrieved performance data will appear in the performance report. To specify a time frame, enter dates and times to reflect the beginning and end of the time frame (the format is *YYYY-MM-DD HH:MI:SS* where *YYYY* is the year, *MM* is a numeric representation of the month (for example, 08 for August), *DD* is the day, *HH* is the hour in 24-hour format, *MI* is the minutes, and *SS* is the seconds).

Table AB. Performance Monitor Report Inputs (Runtime Parameters) Dialog Box Description (cont'd)

Item	Description
2	Time-stamped performance data can appear in the performance report in either ascending (oldest to most recent data) or descending order.

Create a Performance Report

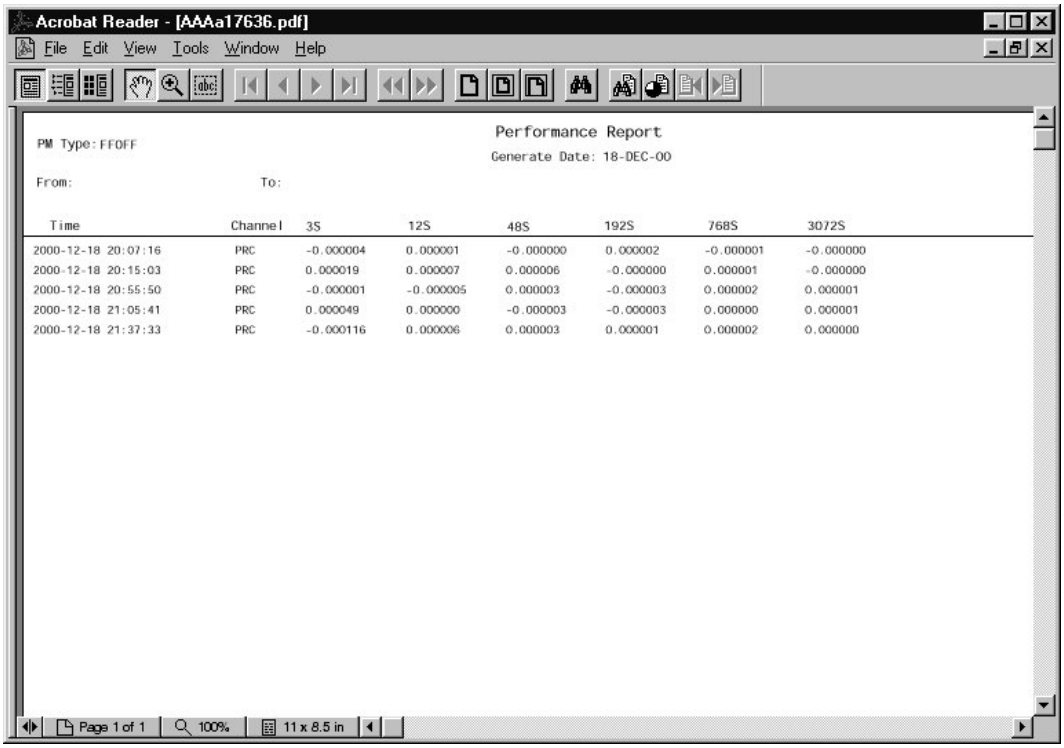
Performance reports are generated from the Performance Monitor Report Inputs runtime parameters dialog box.

Procedure AG explains how to create a performance report.

Procedure AG. Creating a Performance Report

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the network element for which you want to display the performance report.
2	Invoke the Performance Monitor main screen dialog box: *Synchronization Map* - Click on TimePictra>Performance: Performance Monitor. *Launch Pad* - Click the Performance Monitor... shortcut icon, or choose Performance Monitor... from the Perf menu.
3	In the Performance Monitor main screen dialog box, specify the measurement data to be retrieved from the selected NE: a. Performance monitoring cards are capable of performing several different measurements, and you can specify that data for a specific type of measurement be retrieved. Choose the appropriate measurement type by selecting it from the "Measurement Type" drop-down list. b. Choose the input ports from which to retrieve the performance data by selecting the appropriate "Input Aids" check-boxes (clicking the All >> button will select all ports). c. For NEs in which a card can be chosen, select the card from which the data is to be retrieved in the "Card" drop-down list. Note: If the card cannot be chosen for a given NE, the "Card" drop-down list will not appear in the dialog box. d. Click the Apply button to invoke the Performance Monitor Table Plot dialog box.
4	In the Performance Monitor Table Plot dialog box, click the Report button to invoke the Performance Monitor Report Inputs runtime parameters dialog box.

Procedure AG. Creating a Performance Report (cont'd)

Step	Action
5	In the Performance Monitor Report Inputs runtime parameters dialog box, specify the subset of time-stamped data to appear in the performance report, and the sort order (ascending or descending time-stamp order), if desired, then click OK. The report previewer is a separate invocation of the Web browser containing the Acrobat® Reader either as a plug-in to the browser, or as a helper application (separate from the browser). The formatted Performance Report is in PDF (portable document format) and appears similar to the following figure:  PM Type: FFOFF Performance Report Generate Date: 18-DEC-00 From: To: Note: By default, the software displays the performance report, which is generated in PDF format, using the Acrobat® Reader (version 5.0 and above) as a plug-in or helper to the browser. If the Acrobat Reader is not already installed on your client, you can obtain it from Adobe Systems Incorporated.
6	Use the controls of the PDF viewer (Acrobat Reader) to navigate, save, or print the performance report.

End of Procedure

Time	Channel	3S	12S	48S	192S	768S	3072S
2000-12-18 20:07:16	PRC	-0.000004	0.000001	-0.000000	0.000002	-0.000001	-0.000000
2000-12-18 20:15:03	PRC	0.000019	0.000007	0.000006	-0.000000	0.000001	-0.000000
2000-12-18 20:55:50	PRC	-0.000001	-0.000005	0.000003	-0.000003	0.000002	0.000001
2000-12-18 21:05:41	PRC	0.000049	0.000000	-0.000003	-0.000003	0.000000	0.000001
2000-12-18 21:37:33	PRC	-0.000116	0.000006	0.000003	0.000001	0.000002	0.000000

Inventory Management

Chapter 8

This chapter provides information on keeping a master inventory of available hardware resources.

Overview

The TimePictra software provides the ability to keep a master inventory of the hardware resources available in the synchronization network.

The NE Inventory dialog box, also referred to as the master inventory form, is the main interface to the inventory database. Important information related to each hardware resource in the synchronization network is entered into this dialog box, and once applied, is added to the inventory database. A hardware resource can be any sub-assembly of an NE, such as an IMC, TRSC, clock card, output card, or rack frame. Fields in the NE Inventory dialog box can be edited as necessary to reflect changes in the status of hardware resources, and some filtering functionality is included for easy retrieval of resource information.

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In This Chapter

The remainder of this chapter includes the following sections:

- Managing the Inventory Database: Managing a master inventory of the hardware resources available in the synchronization network.
- Inventory Reports: Producing formatted reports of the inventory database.

Managing the Inventory Database

Information on each hardware resource in the synchronization network is entered into the NE Inventory dialog box, where it can then be applied to the inventory database. A hardware resource can be any of the NE sub-assemblies, also called equipment types. The dialog box can also be used to view the database, and some filtering functionality is included for easy location and retrieval of resource information. The NE Inventory dialog box is shown in Figure 24 and described in Table AC.

Figure 24. NE Inventory Dialog Box

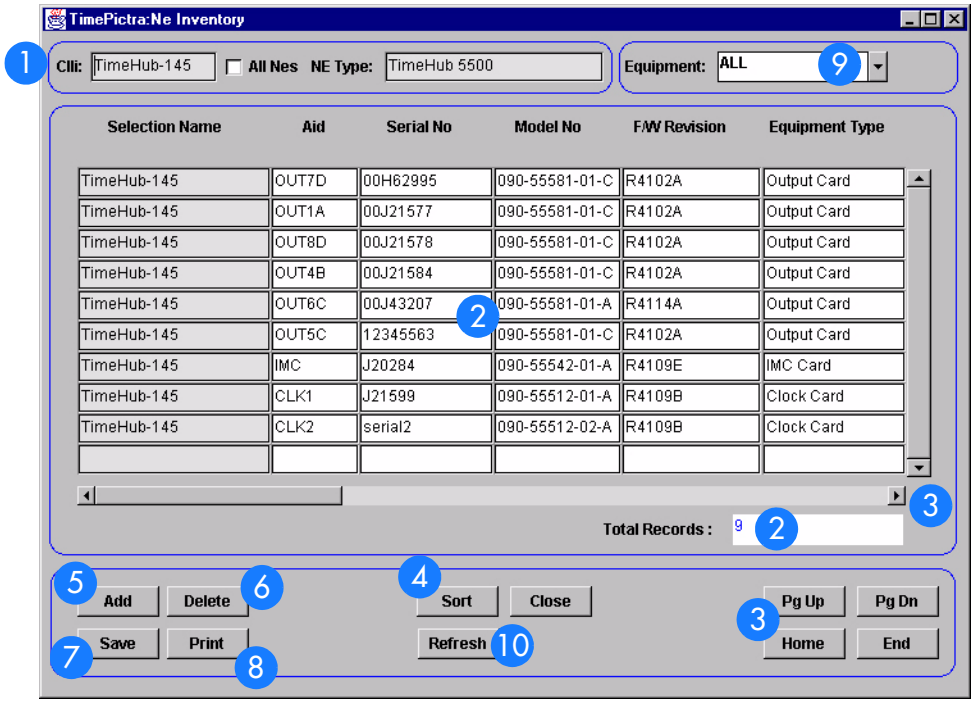

Table AC. Inventory Dialog Box Description

Item	Description
1	The NE Inventory dialog box cannot be invoked unless an NE is selected in the synchronization network map or Launch Pad. When the dialog box is invoked, the CLLI code of the selected NE is shown in the CLLI field, and the type of the selected NE is shown in the NE Type field. Once the dialog box has been invoked, the CLLI field can be double-clicked to display an NE List sub-box which lists all available NEs. An NE can then selected in the NE List sub-box to display its inventory in the NE Inventory dialog box. If the All NEs check-box is not selected, the information in the resource listing (which is explained below) represents only the hardware resources that are associated with the selected NE. If the All NEs check-box is selected, the hardware resources in the resource listing represent all NE hardware resources that have been entered into the inventory database. When the All NEs check-box is selected, the NE Type field indicates ALL NEs.
2	This area of the NE Inventory dialog box, referred to as the *resource listing*, contains a listing of hardware resources that have been entered into the inventory database. The information in a given row applies to a single hardware resource. The Serial No and Aid fields in each row uniquely identify a given hardware resource, and therefore cannot be changed once the resource is applied to the database. Many other fields in the row, however, can be edited as resource status changes dictate. Refer to the task entitled Modify the Inventory Database for an explanation of the information provided in the resource listing.
3	The number of potential entries in the resource listing can exceed the number of entries that can be displayed at any one time. When this is the case, the Pg Up (page up), and Pg Dn (page down) buttons as well as the vertical scroll bar can be used to view them. To fit on the client display, the width of the NE Inventory dialog box is too narrow to display all resource inventory fields. The horizontal scroll bar can be used to view fields that are out of view.
4	The Sort button invokes a Sorting dialog box in which sort criteria can be selected and then applied to the dialog box listing.
5	Clicking the Add button inserts a new row into the resource listing below the currently selected row. Information can then be filled into the newly inserted row for a new hardware resource. Note that the serial number (Serial No.) and Aid fields must be filled in first before the other fields can be filled in.
6	Clicking the Delete button will delete the selected row from the listing.
7	When clicked, the Save button causes the changes, additions, or deletions made in the resource listing to be added to the inventory database.
8	Clicking the Print button calls up a previewer from which you can view a formatted inventory report, and print the inventory report to a printer. Refer to the task *Create an Inventory Report* for more information.
9	The equipment drop-down list allows only equipment of a certain type to be displayed in the resource listing.
10	The Refresh button can be clicked at any time to update the information in the resource listing.

Modify the Inventory Database

Modifying the Inventory database is described in Procedure AH.

Procedure AH. Modify the Inventory Database

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure, however, users of the User class can only view the NE Inventory dialog box, not modify it.	
1	Select the network element symbol on the map or in the Launch Pad for which you want to display the resource listing.
2	Invoke the NE Inventory dialog box: *Synchronization Map* - Click on TimePictra>Inventory. *Launch Pad* - Click the Inventory... shortcut icon, or choose Inventory... from the Inventory menu. *Note:* It is recommended that there be no more than two NE Inventory dialog boxes opened at a time per user session. The resource listing area of the NE Inventory dialog box contains a listing of the hardware resources that are currently stored in the inventory database for the selected NE. The actual resources listed can be changed by selecting an equipment type in the Eqpt Type drop-down list to suit current needs. Table AD contains a description of the information in the resource listing.
3	If the number of current resource entries exceeds the number of entries that can be displayed in the resource listing, use the Pg Up and Pg Dn buttons as well as the vertical scroll bar to view them. The horizontal scroll bar can be used to view all fields of the resource listing.

Step	Action
4	*Note:* Modifications to the inventory database cannot be made if the All NEs check-box is selected. Make the appropriate modifications: To modify an existing entry in the listing, click on the appropriate fields and re-enter the information. *Notes:* 1. For inventory records in which the "Std. Inventory" column is Yes, only certain fields can be modified, as the information in those records is retrieved from the NE's inventory database. 2. If an entry has already been saved to the database, the Serial No (serial number) and Aid fields, as well as other fields that are against a gray background, cannot be modified. If an attempt is made to modify them, a message box displaying the message `Field is protected against update` will be displayed. To change these fields, an entire new resource entry must be added which includes the changed information, and the old entry deleted. To add a new entry into the listing, either click the Add button, or click on the first blank row at the end of the listing. A new row is added to the listing, to which the new resource information can be entered. The Serial No and Aid fields must be filled in before filling in the rest of the fields. Some fields might contain default information, but all can be modified as is appropriate. To delete any entry from the listing, click on the entry, then click the Delete button. Note: Items that are part of the NE's standard inventory cannot be deleted.
5	Select the appropriate action: To save the resource modifications, which adds them to the inventory database, click the Save button, then click OK in the message box that appears. To modifications made to the resource listing since the last time Save was clicked, click the Revert button, then choose the pertinent button in the confirmation box that appears. *Note:* Once Save is clicked, the changes to the database are committed and cannot be undone by clicking Revert. If Exit is clicked before changes that have been made are applied, a message box appears asking if you want to apply the changes.
6	Click the Exit button to close the NE Inventory dialog box.

End of Procedure

Table AD is referenced from within Procedure AH.

Table AD. Resource Listing Field Descriptions

Field	Description
Selection Name	The CLLI Code of the selected NE
Aid	The TL/1 command equivalent for the equipment type for standard inventory entries. For non-standard entries, Aid can be whatever the user inputs. *Note:* The Aid cannot have the letters TP as its first two characters.
Serial No.	A unique serial number identifying the resource. The serial number can be assigned as per company policy, but it must be unique. This field must be filled in before any of the other fields can be filled in. Once the resource information has been applied to the database, this field cannot be modified.
Model No	The model number of the hardware resource.
Firmware Revision	The current revision code for the resource's firmware. The firmware revision code is a means of tracking differing firmware versions of the same model of equipment. *Note:* For cards that are not standard inventory, the firmware revision code assigned here is entered by the user. If an upgrade to the firmware of the resource should cause a change in firmware revision code, be aware that the change will not automatically be reflected in this field.
Equipment Type	The type of hardware resource. When the NE is managed, this field is automatically populated. The contents can be manually edited.
Description	A description of the resource. The resource's location, such as the room or shelf number where it is installed or stored, can be entered in this field.
Date Installed	Typically, the date that the resource was incorporated into the network is entered into this field. When a new row is added to the listing, this field is set to the current date, but it can be changed. The valid date format is MM-DD-YY.
Warranty End Date	The date that the resource's warranty ends. The valid date format is the same as for the Date Incorp field.
Resource State	The current status of the resource, which explains whether it is newly installed, in service, in repair, etc. The field can be manually edited.
Removed Date	If the resource is removed from the synchronization network, as for repair, replacement, scrapping, etc., this field can be filled in to reflect the date when it was removed. The valid date format is the same as for the Date Installed field.
Bidder	The bidder for the resource, as the company from which the resource was purchased.
Std. Inventory	If the inventory record is part of the NE's standard inventory, as when it has been reported by the NE from the NE's inventory database, this field will be Yes. If the inventory record is not part of the NE's standard inventory, this field will be No.

Table AD. Resource Listing Field Descriptions (cont'd)

Field	Description
Details	Contains details of serial number, model number, firmware revision, CLEI[1], ECI[1], Port GRP-1[1], Port GRP-2[1] CLEI - The Common Language Equipment Code, which is an industry standard ten-digit code used to uniquely identify the telecommunications equipment. ECI - The Equipment Catalog Item, which is a six-digit bar code on the equipment's bar code label. Port GRP-1 - The type of outputs generated on outputs 1 through 20 Port GRP-2 - The type of outputs generated on outputs 21 through 40
Remarks	Any additional remarks are added to this field.

1. These fields are included only for the TimeHub 5500 NE

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Sort Inventory for Display in the NE Inventory Dialog Box

The software provides a sorting function by the inventory items can be sorted into groupings according to the user's preferences.

Procedure AI explains how to sort items for display in the NE Inventory dialog box.

Procedure AI. Sorting Items for Display in the NE Inventory Dialog Box

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Click the Sort button that is in the NE Inventory dialog box to call up the Sorting dialog box, then choose the desired sort criteria by selecting the appropriate check-boxes.
2	For the sort criteria selected in the above step, set the sort order, either Ascending or Descending, by selecting the appropriate radio buttons.
3	Click OK to close the Sorting dialog box and perform the sort operation.
End of Procedure	

Inventory Reports

The software provides the capability to produce formatted reports of the inventory database. Inventory reports are generated in Portable Document Format (`*.pdf`), which can then be transferred between various computer platforms, displayed, and printed. Report data can be sorted in ascending or descending order of the various inventory fields.

Create an Inventory Report

The information displayed in the NE Inventory dialog box can be viewed as a formatted Inventory Report, and printed to a printer. Procedure AJ explains how to create an inventory report.

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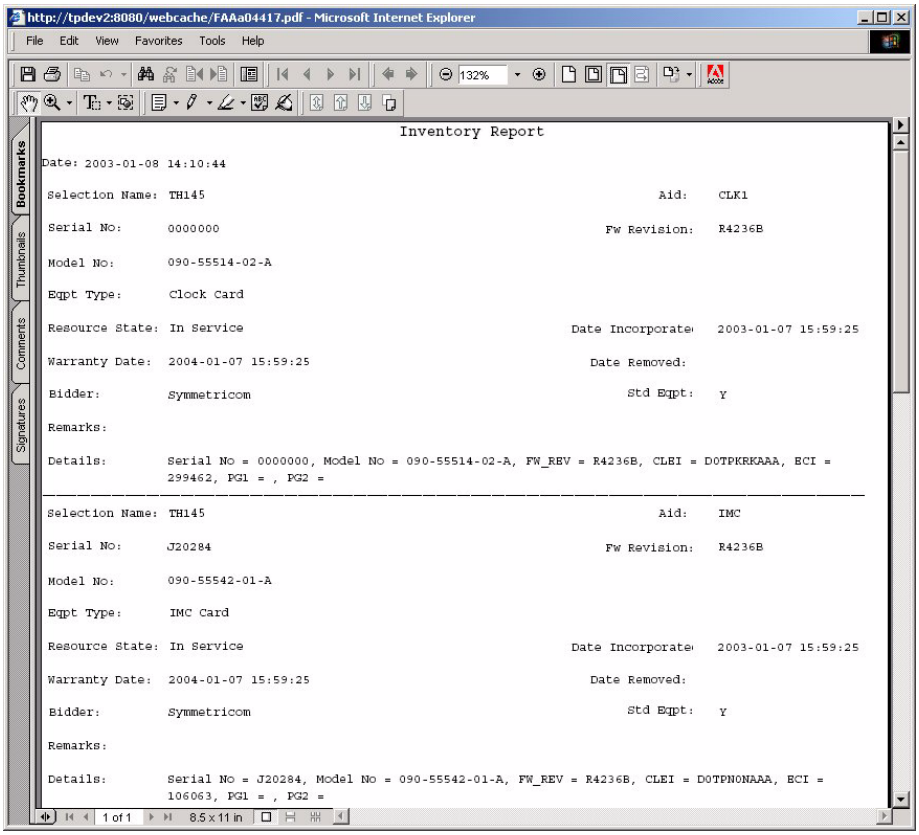
Procedure AJ. Creating an Inventory Report

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Ensure that the sorting criteria are set as desired in the NE Inventory dialog box. The order in which entries appear in the inventory report is determined by the sort order in the NE Inventory dialog box. Refer to the procedure *Sort Inventory for Display in the NE Inventory Dialog Box* in this chapter.

Procedure AJ. Creating an Inventory Report (cont'd)

Step	Action
2	Click the Print button in the NE Inventory dialog box to invoke the report previewer. The report previewer is a separate invocation of the Web browser containing the Acrobat® Reader either as a plug-in to the browser, or as a helper application (separate from the browser). The formatted Inventory Report is in PDF (portable document format) and appears similar to the following figure:  *Note:* By default, the software displays the Inventory Report, which is generated in PDF format, using the Acrobat® Reader (version 5.0 and above) as a plug-in or helper to the browser. If the Acrobat Reader is not already installed on your client, you can obtain it from Adobe Systems Incorporated.
3	Use the controls of the Acrobat Reader to navigate, save, or print the Inventory Report.

End of Procedure

Security Management

The procedures in this chapter explain how to create, modify, and delete TimePictra users and NE users, and how to create and modify Management Domains for users.

Chapter 9

Overview

To control access to and protect the integrity of the TimePictra system as well as synchronization network resources, the software has implemented the concept of Security Management, in the form of user administration.

When the software is installed, a system user with the user name “SEC” is automatically created in the “Security” user class. No other users can access the system until they have been explicitly created by this user. Each user is assigned a username, password, and *user class* (also referred to as the “level”), when they are created by the security-class user. The user class dictates the level of access that the user has to the software’s functionality.

Note: User Classes are explained further in the chapter entitled *Introduction and General Information* in this manual.

Before users of the User, Administrator and Security classes can perform management activities on any synchronization network hardware, a management domain must be set up for the user. The management domain specifies which NEs a given user has permission to access. Management domains are set up and administered by the Security-class user.

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Note: Once a User has been created (using the “Creating System User”) and assigned a Domain (using “Creating or Modifying a Management Domain”), the user is in a position to access TimePictra via web interface. For the User to access TimePictra via Openview Synchronization Map, the User must have an active UNIX account on the TimePictra server. The UNIX System Administrator can use SAM to accomplish this.

The “Group” allocated to the User defines the control that the User will have on the Network Elements assigned to him using Domain Management.

In This Chapter

This chapter contains the following sections:

- *TimePictra User Administration* - creating, modifying, and deleting users from the TimePictra system.
- *Network Element User Administration* - creating, modifying, and deleting users from the selected NE.
- *Management Domains* - creating and modifying management domains for users accessing TimePictra via web interface or a Windows session.
- *Features available* - to each user class.

TimePictra User Administration

The User Administration dialog box is used to manage (add, modify, or delete) TimePictra system users. Figure 25 and Table AE briefly explain the User Administration dialog box:

Figure 25. User Administration Dialog Box

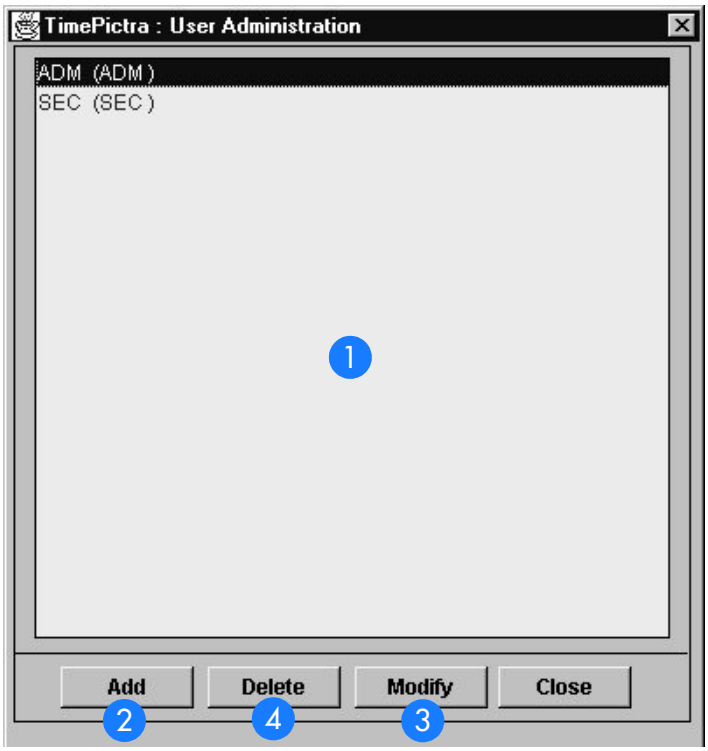


Table AE. User Administration Dialog Box Description

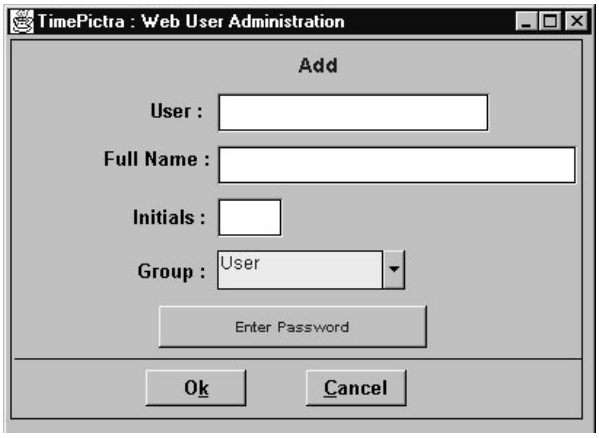
Item	Description
1	This area, referred to as the *user list area*, displays the username and current level (user class) of the existing users.
2	Clicking the Add button invokes a sub-box into which information for a new TimePictra user can be added.
3	To modify an existing TimePictra user, select the user in the user list area, then click the Modify button to invoke a sub-box in which modifications can be made as is necessary to the user's information.
4	To delete a system user, select the user in the user list area, and click the Delete button to invoke a sub-box in which the user's information can be viewed prior to deletion of the user.

Create (Add) a System User

Note: The TimePictra database must be running in order to perform the following task.

Procedure AK describes how to create a system user.

Procedure AK. Creating a System User

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Invoke the User Administration dialog box.: *Synchronization Map* - Click the User Administration option from the Security menu. The Security menu item is part of the TimePictra menu. *Launch Pad* - Click the User Admin... shortcut icon, or choose User Admin... from the Security menu. The User Administration dialog box contains a listing of current TimePictra users in the user list area. When first invoked, the username of the security-class user currently logged on is selected in the user list area.
2	Click the Add button to invoke the "Add" User Administration dialog box, which appears similar to the following figure: 
3	Enter the information shown in Table AF into the User, Full Name, Initials, and Group fields.
4	Click the Enter Password button to invoke the Password Window dialog box, enter password information into the fields in that dialog box as explained in Table AF, then click the OK button.
5	Click OK in the message box that reads `User user_name created successfully` (where `user_name` is the name of the user just created).
6	To close the User Administration dialog box, click the Close button, then click Yes when the question `Do you want to exit from User Administration?` appears.

Create Unix User on TimePictra Server

Note: For a user to start an OpenView Synchronization Map Session, in addition to the proceeding steps, the following steps need to be performed.

Procedure AK. Creating a System User (cont'd)

Step	Action
7	Start a shell with user root.
8	Enter the following command at # prompt to start a session for the System Administration Manager utility: `sam`
9	In the following menu option select Accounts for Users and Groups.
10	In the subsequent menu option select Users.
11	In the subsequent menu option click on Action from the main menu and select ADD...
12	In the subsequent menu option enter the Name of the user and click OK. The user can change all the other options or leave them to their default values. (Please make sure that the user name entered is already created on the TimePictra or create it after this procedure is completed, to enable starting an Openview Session for TimePictra.)
13	Enter the password for the user and then confirm it to complete the creation process.
14	Exit out of sam.
15	Start a shell for this new user created in the previous step.

16	Edit the .profile file for the user, using vi editor. And add the following line to source the environment to start TimePictra session:
	
	`if [ -r /opt/osmf/config/env/osmf-http.env]; then`
	
	`. /opt/osmf/config/env/osmf-http.env`
	
	`fi`
	
	`export DISPLAY=<hostname>:0.0`

Note: For a user to start a TimePictra Unix Session from a Unix machine other than the TimePictra server, make sure to use the export DISPLAY command for the current host machine (export DISPLAY=<hostname>:0.0).

End of Procedure

Note: For every user that is created using this procedure, its Web counterpart is automatically created. When logging into TimePictra over the Web, the user name must have a suffix of "w" or "W". The password entered here is only used to log in from the Web. If a user wants to start an OpenView Map Session, a user with the same name needs to be created on the TimePictra Server.

Table AF is referenced from within Procedure AK.

Table AF. User Information

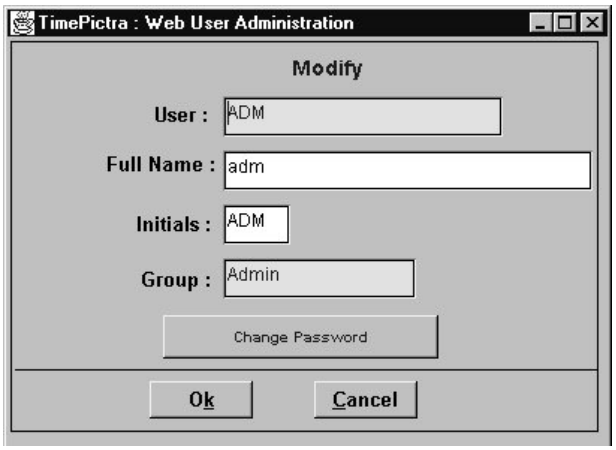
Field	Description
User	Enter a unique user name. The user name is used to identify the user's account. The user name can contain up to 8 upper-case or lower-case characters. *Note:* In general, avoid characters other than alphanumeric characters in the user name. While some non-alphanumeric characters are valid, many are not. If you enter a user name that contains invalid characters, the system will issue an "Invalid Username" message.
Full Name	Enter the account user's complete (full) name.
Initials	The user's initials, or some other unique three character (absolute) alphanumeric string. The characters entered here become the first three characters of the correlation tag (ctag) parameter for TL/1 commands issued by the user's TimePictra session, as well as their resultant responses.
Level	Select the level, or *user class*, that the user will belong to. The level selected will determine the privileges that the user has when using the system. *User* - Users in this class can start and stop their own user session, and view the network topology locally in the network map or remotely over the world-wide-web using the Launch Pad. Synchronization management information in the NE Status, Fault Analysis, Alarm Viewer, Event History Log, Performance Monitor, Inventory, Configuration, and Activity Log dialog boxes can be viewed. Users in this class can also create and print reports. *Administrator* - Users in this user class have all of the capabilities of the User class, and can additionally manage and unmanage NEs, discharge alarms, modify the inventory database, modify the current configuration of NEs, perform forced alarm synchronization operations, and perform command pass-through operations. *Security* - Users in this user class have all of the capabilities of the User and Administrator classes, and can modify the network topology, manage default NE configurations, download firmware upgrades to NEs, manage NE and TimePictra users, and configure management domains for users.
Password Window (dialog box)	Enter the password that the user must use to log on into the Enter New Password field, then enter the password again into the Confirm New Password field. The password can contain up to 30 characters. The characters must be printable characters, and at least the first character must be an alpha character. Alpha characters can be a mixture of upper-case or lower-case characters. *Notes:* 1. The password entry is case-sensitive as far as re-entry into the Confirm Password area goes, but is not case-sensitive when logging in. 2. In general, avoid characters other than alphanumeric characters in the password. While some non-alphanumeric characters are valid, many are not. If you enter a password that contains invalid characters, the system will issue an "Invalid Password" message.

Modify System User Information

Note: The TimePictra database must be running in order to perform Procedure AL.

Procedure AL explains how to modify system user information.

Procedure AL. Modifying System User Information

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Invoke the User Administration dialog box.: *Synchronization Map* - Click the User Administration option from the Security menu. The Security menu item is part of the TimePictra menu. *Launch Pad* - Click the User Admin... shortcut icon, or choose User Admin... from the Security menu. The User Administration dialog box contains a listing of the current TimePictra users in the user list area. When first invoked, the username of the security-class user currently logged on is selected in the user list area.
2	In the user list area, select the TimePictra user that you wish to modify.
3	Click the Modify button to invoke the "Modify" User Administration dialog box, which appears similar to the following figure: 
4	Modify the user's Full Name, Initials, or Password as is necessary in the fields as shown in Table AG. *Note:* You cannot change a user's username (in the "User" field) or Group with this procedure. To change a user's username or group, you must delete the existing user, then re-add the user with the same user information, but modified username or group.
5	Click OK in the "Modify" User Administration dialog box and go to step 7 if the user's password is not going to be changed. If the user's password is going to be changed, click the Change Password button and continue with the next step.
6	Enter password information into the fields in the Password Window dialog box as explained in Table AG, then click the OK button.
7	Click Yes for each question `Do you want to change` *`info_field`* `for the user` *`user_name`*`?`
8	Click OK in the confirmation box that follows to dismiss it.
9	To close the User Administration dialog box, click the Close button, then click Yes when the question `Do you want to exit from User Administration?` appears.

9

Procedure AL. Modifying System User Information (cont'd)

Step	Action
	End of Procedure

Table AG. User Information

Field	Description
Full Name	Enter or modify the account user's complete (full) name.
Initials	Modify the user's initials, if desired. A three character (absolute) alphanumeric string is required.
Password Window (dialog box)	Modify the password, if desired, in the Enter New Password and Confirm New Password fields. The password can contain up to 30 characters. The characters must be printable characters, and at least the first character must be an alpha character. Alpha characters can be a mixture of upper-case or lower-case characters. *Notes:* 1. The password entry is case-sensitive as far as re-entry into the Confirm Password area goes, but is not case-sensitive when logging in. 2. In general, avoid characters other than alphanumeric characters in the password. While some non-alphanumeric characters are valid, many are not. If you enter a password that contains invalid characters, the system will issue an ERROR message.

9

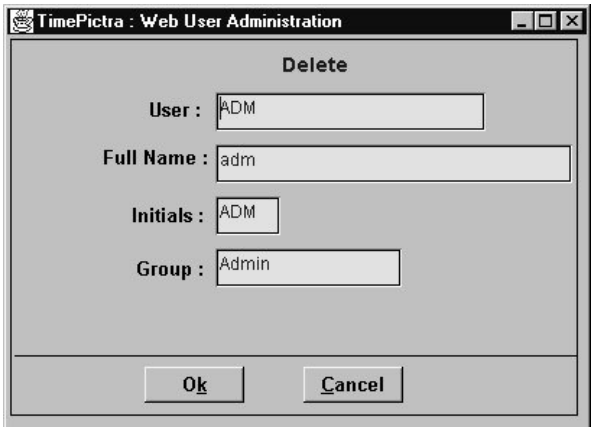
Delete a System User

Note: The TimePictra database must be running in order to perform Procedure AM.

Procedure AM explains how to delete a system user.

Procedure AM. Deleting a System User

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Invoke the User Administration dialog box.: *Synchronization Map* - Click the User Administration option from the Security menu. The Security menu item is part of the TimePictra menu. *Launch Pad* - Click the User Admin… shortcut icon, or choose User Admin… from the Security menu. The User Administration dialog box contains a listing of the current TimePictra users in the user list area. When first invoked, the username of the security-class user currently logged on is selected in the user list area.

Step	Action
2	In the user list area, select the TimePictra user that you wish to delete.
3	Click the Delete button to invoke the "Delete" User Administration dialog box, which appears similar to the following figure: 
4	Click the OK button in the "Delete" User Administration dialog box.
5	Click Yes to the question `Do you want to delete the user` *`user_name`*`?`, then click OK in the confirmation box that states that the user has been deleted successfully. *Note:* Users that are currently logged on can be deleted. Once deleted, their session becomes invalid. During this invalid session time, if an attempt is made to add the user name, an error will be displayed. The invalid session will need to be closed before the user can be added again.
6	To close the User Administration dialog box, click the Close button, then click Yes when the question `Do you want to exit from User Administration?` appears.

End of Procedure

9

Network Element User Administration

In order for a user to access a given NE via an alternate interface, such as a local terminal interface, a login for that user must first exist on the NE. The software allows administration of NE users remotely. NE user administration takes place within the NE User Administration dialog box. Figure 26 shows and Table AH describes the NE User Administration dialog box.

Figure 26NE User Administration Dialog Box

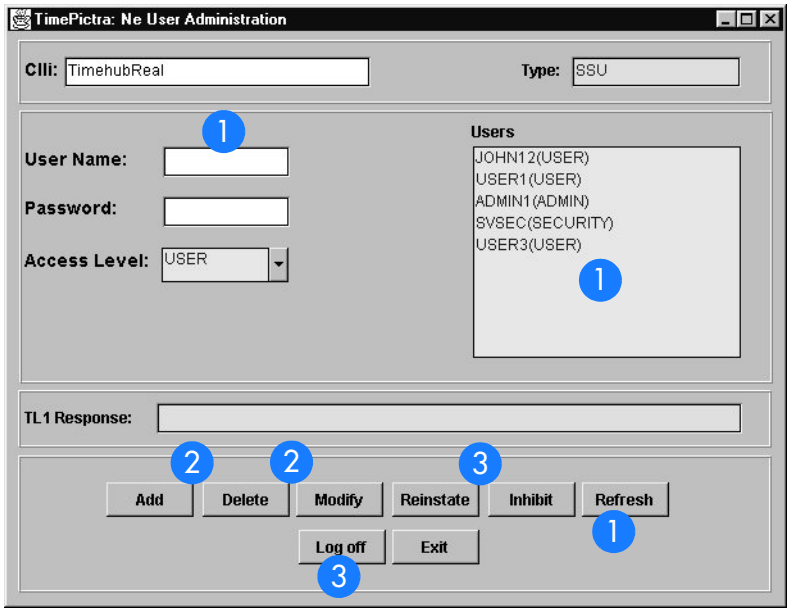


Table AH. NE User Administration Dialog Box Description

Item	Description
1	The user list on the right side of the dialog box shows all of the users currently existing on the NE shown in the CLLI field. The Refresh button can be clicked at any time to refresh the user list. The User Name, Password, and Access Level fields are used when adding a user or modifying a user's profile. If an existing user is selected in the user list, that user's name and access level will appear in the appropriate fields.

Table AH. NE User Administration Dialog Box Description (cont'd)

Item	Description
2	The Add button is used to create (add) a new user on the selected NE. In order to add a user, enter a user name, password, and access level for the user, then click Add. Once a user has been created on an NE, some of the user's information can be modified using the Modify button. In order to modify the user's information, select the user's name in the user list, modify the information as appropriate, then click Modify. *Note:* If a given piece of user information is not modifiable by the NE, the NE will issue a `DENY from NE` response, and the information will not change. If this is the case, the user will have to be deleted and re-added with the different information to effect the change. Users can be deleted from the NE by selecting the user's name in the user list, then clicking the Delete button. *Note:* The Modify button is not available for all NE types.
3	The Inhibit button is used to prevent a user from accessing the NE. Once this action is taken, the user can no longer log into the NE until the Reinstate button is used to reinstate the user. *Notes:* 1. If the user is already logged into the NE and Inhibit is clicked, the inhibit operation will be denied. 2. Reinstate and inhibit buttons are not available for all NE types. The Log Off button is used to immediately log the selected user off of the NE. Unlike the Inhibit button, a user that is logged off of the NE through use of the Log Off button will retain log in permission.

9

Create a User on an NE

Procedure AN explains how to create a User on an NE.

Procedure AN. Create a User on an NE

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE on which the user is to be created.
2	Invoke the NE User Administration dialog box: *Synchronization Map* - Click the SSU User Administration menu item from the Security menu (the Security menu item is part of the TimePictra menu). *Launch Pad* - Choose NE User Admin... from the Security menu. The users that currently have logins on the selected NE are shown in the user list on the right side of the dialog box.

Procedure AN. Create a User on an NE (cont'd)

Step	Action
3	Enter the following information into the NE User Administration dialog box. **Field** — **Description** User Name — The login name for the user. The login name can be up to ten alphanumeric characters. It is not case sensitive. Password — The user's password. The password can be three to ten characters in length, at least two of which cannot be letters of the alphabet. Also, at least one special character must be included in the password. A special character is any printing character other than a letter of the alphabet, a number, comma, colon, or semicolon. The password is case sensitive. Access Level — The user class: These NE user classes are similar to the access levels for TimePictra users. User - Users at this access level can issue NE commands that are involved in the retrieval of information. Administrator - Users at this access level can issue NE commands that are involved in changing of the NE's configuration. They also have the privileges afforded by the User class. Security - Users at this access level can issue NE commands that are involved in modification of the NE's Security Database, and firmware downloads. They also have the privileges afforded by the User and Administrator classes. *Note:* For some NE types, a user might be required to hit the Add button before he can enter information in these fields.
4	Click the Add button to create the user, then click the Exit button to close the NE User Administration dialog box.

End of Procedure

Delete a User from an NE

Procedure AO explains how to delete a User from an NE.

Procedure AO. Delete a User from an NE

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE on which the user is to be deleted.

Procedure AO. Delete a User from an NE (cont'd)

Step	Action
2	Invoke the NE User Administration dialog box: *Synchronization Map* - Click the SSU User Administration menu item from the Security menu (the Security menu item is part of the TimePictra menu). *Launch Pad* - Choose NE User Admin... from the Security menu. The users that currently have logins on the selected NE are shown in the user list on the right side of the dialog box.
3	In the user list area of the dialog box, click on the name of the user to be deleted. *Note:* No warning or confirmation box is presented prior to deletion of the user.
4	Click the Delete button to delete the user, then click the Exit button to close the NE User Administration dialog box. *Note:* To verify the success of the operation, view field "TL1 Responses". It should indicate "Done"
	End of Procedure

9

Change an NE User's Access Level and Password

Procedure AP explains how to change a user's access level and password.

Procedure AP. Change an NE User's Access Level and Password

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE on which the user's access level and password is to be changed.
2	Invoke the NE User Administration dialog box: *Synchronization Map* - Click the SSU User Administration menu item from the Security menu (the Security menu item is part of the TimePictra menu). *Launch Pad* - Choose NE User Admin... from the Security menu. The users that currently have logins on the selected NE are shown in the user list on the right side of the dialog box.
3	In the user list area of the dialog box, click on the name of the user for which the access level and password is to be changed. The user's current login name and access level appears in the appropriate fields in the dialog box.

Procedure AP. Change an NE User's Access Level and Password (cont'd)

Step	Action
4	Change the user's access level and password as is appropriate in the Access Level and Password fields. *Note:* To change just the access level, re-enter the password, even if the password will not be changed. There are three access levels (user classes): User, Administrator, and Security, which are explained in Procedure AN.
5	Click the Modify button to cause the change to take place, then click the Exit button to close the NE User Administration dialog box.

End of Procedure

Note: Not all NEs support modification; thus, for these NE types an NE user needs to be deleted and then added again.

9

Inhibit an NE User from Future Log-Ins

Procedure AQ explains how to suspend a user's permission to access an NE without deleting that user from the NE.

Note: This functionality is not available for all NE types.

Procedure AQ. Inhibit an NE User from Future Log-Ins

Step	Action
Note: Users of the Security class can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE on which the user's login permission is to be changed.
2	Invoke the NE User Administration dialog box: *Synchronization Map* - Click the SSU User Administration menu item from the Security menu (the Security menu item is part of the TimePictra menu). *Launch Pad* - Choose NE User Admin… from the Security menu. The users that currently have logins on the selected NE are shown in the user list on the right side of the dialog box.

Procedure AQ. Inhibit an NE User from Future Log-Ins (cont'd)

Step	Action
3	In the user list area of the dialog box, click on the name of the user for which login permission is to be changed. The user's current user name and access level appear in the appropriate fields in the dialog box *Note:* If a user's login permission is currently denied, (DISABLED) takes the place of the user's access level in the user list area of the NE User Administration dialog box.
4	Click either the Inhibit or Reinstate button as appropriate to change the user's login permission. The Inhibit button prevents the user from logging on to the NE. Once the Inhibit button is clicked, the user will not be able to log into the NE until his or her login permission is reinstated through use of the Reinstate button. *Note:* If the user is logged into the NE when Inhibit is clicked, the inhibit operation will be denied. If the inhibit operation is denied, click the Log Off button first to log the user off of the NE, then click the Inhibit button.
5	Click the Exit button to close the NE User Administration dialog box.
	End of Procedure

Note: Not all NE types support inhibition of user; thus, in this case the Inhibit button would not exist on the "NE User Administration" form.

9

Management Domains

Before User, Administrator, or Security class users other than user “SEC” can perform management activities on any synchronization network hardware, a management domain must be set up for the user. The management domain specifies which NEs and sub-networks a given user has permission to access.

During the installation of TimePictra, a User SEC is created. The user can then log on to TimePictra from Launch Pad using SECW as the username and SECW as the password. Any NE or domain added to TimePictra automatically becomes part of the User’s domain.The domain for user SEC cannot be modified.

Note: If a user currently has no management domain set up, a message box containing the following message will appear when the user attempts to log onto the system:

```
Currently there is no filter configured for you. Contact your security user
immediately.
```

The user must then click the OK button in the message box to close out the session, and contact a security-class user. Security-class users have the ability to create management domains.

9

Management Domains dialog box

The Management Domains dialog box is used to manage the management domain of users. Management domains determine the portions of the Launch Pad containment tree or the synchronization map that the user can access. Figure 27 and Table AI briefly explain the Management Domains dialog box:

Figure 27. Management Domains Dialog Box

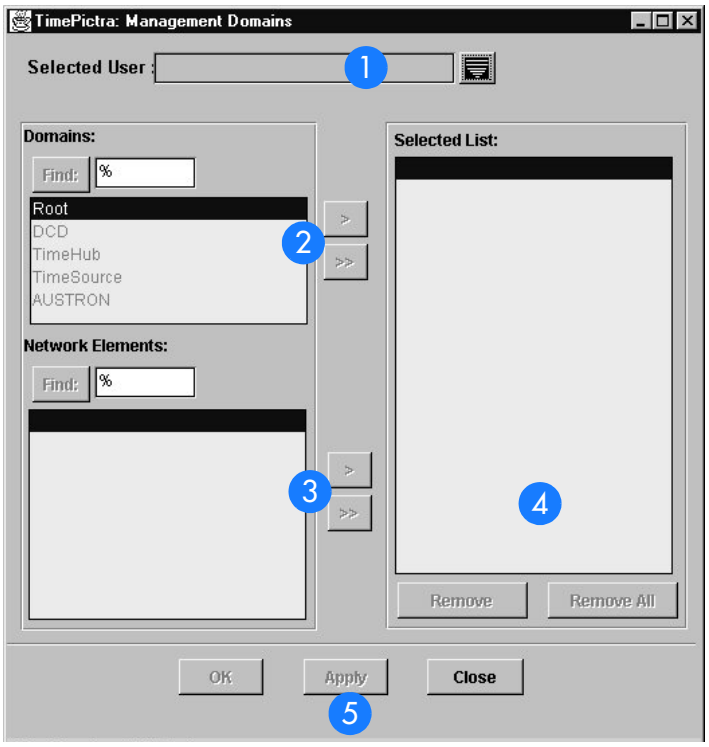


Table AI. Management Domains Dialog Box Description

Item	Description
1	This area shows the name of the user to which the management domain applies. When the dialog box is first invoked, this field is blank. After a user name is selected, the user's domain is displayed in the lower fields of the dialog box.
2	The "Domains" list area contains a listing of the *domains* (also referred to as *sub-networks* or *containers*) that have been created (domains are typically used to represent portions of the total synchronization network, such as geographical areas). To add domains to the selected user's management domain, select them in the "Domains" list area, then click the > button. Click the >> button to add all of the elements in the "Domains" list area to the user's management domain. *Notes:* 1. The "Root" domain is owned by user "sec" and "secw". The system does not allow any other user to have it as part of his Management domain. 2. If the list is long, use the find function (Find: button and associated entry field) to search for a specific domain.

Table AI. Management Domains Dialog Box Description (cont'd)

Item	Description
3	The "Network Elements" list area contains a listing of the network elements that are contained in the domain that is selected in the "Domains" list area. To add individual network elements to the management domain, select them in the "Network Elements" list area, then click the > button. Click the >> button to add all of the elements in the "Network Elements" list area to the management domain. *Note:* If the list is long, use the find function (Find: button and associated entry field) to search for a specific network element.
4	The "Selected List" list area contains a listing of all of the domains and network elements that are in the user's management domain. Once applied, only the domains and network elements listed here will appear in the target list area of the Launch Pad or in the synchronization map when the user is logged on. Selecting an item in the "Selected List" list and clicking the Remove button will delete it from the list, or clicking the Remove All button will remove all items from the list. *Notes:* 1. If a given domain is added to the management domain, all sub-domains within that domain are also added. All the NEs within that domain and sub-domain are added to the management domain by default, and cannot be individually removed or added from or to the management domain. 2. If a given user's management domain is empty, then no management domain exists for that user. The user cannot log on to the system if no management domain exists.
5	*Modifications to the management domain do not take effect until they are applied.* Clicking OK will apply any modifications made to the management domain and close the dialog box. Clicking Apply will apply the modifications made to the management domain, but will not close the dialog box. Clicking Close will close the dialog box. If changes were made to the management domain that are not applied when Close is clicked, a question box appears asking if you want to save the changes. *Note:* If the management domain is changed for a user with an active session, there would be no impact of change to the users current session until he attempts to refresh the screen or restart the session. A new session for the user would open with changes.

Create or Modify a Management Domain

The Security-class user with username SEC has an all-inclusive view of the synchronization network by default, and cannot possess a management domain. Management domains must be set, however, for all other users.

Procedure AR explains how to create or modify a management domain.

Procedure AR. Creating or Modifying a Management Domain

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Invoke the Management Domains dialog box: *Synchronization Map* - Click the Management Domain menu item from the Security menu (the Security menu item is part of the TimePictra menu). *Launch Pad* - Click the Management Domain… shortcut icon, or choose Management Domain… from the Security menu.
2	Click the small button that is to the right of the Selected User field, and in the sub-box that appears, select the user to which the management domain changes are to pertain, then click OK. The "Domains" list area of the dialog box contains a listing of all of the domains in the synchronization network map or Launch Pad containment tree. If a domain is selected in the "Domains" list area, the network elements contained within that domain will be listed in the "Network Elements" list area. The domains and network elements that appear in the "Selected List" list area represent the current management domain for the user.

9

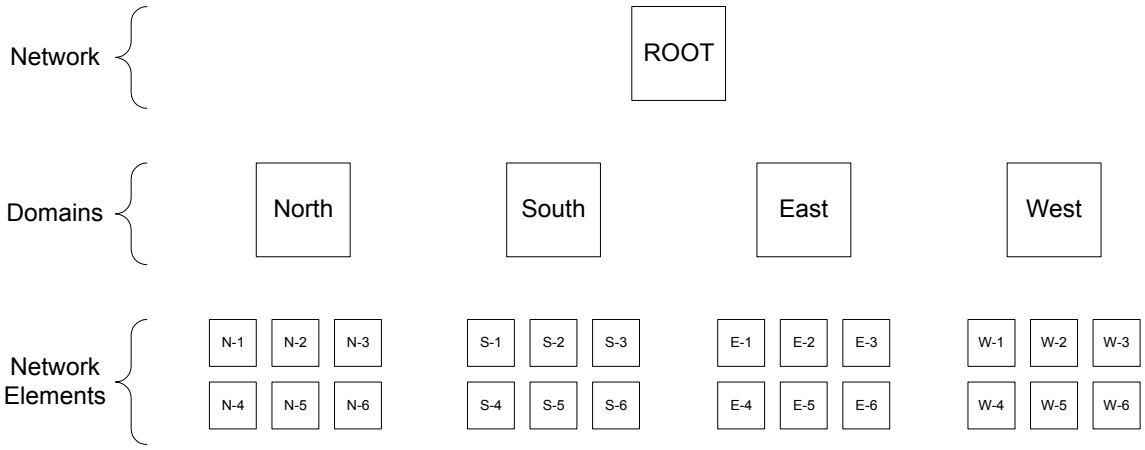
Step	Action
3	**Modify the management domain, as appropriate:** • *To add all of the domains currently listed in the "Domains" list to the management domain,* click the >> button that is associated with the "Domains" list. Now you can use the Remove button to selectively remove certain domains from the management domain. • *To add individual domains to the management domain,* select the name of the domain in the "Domains" list, then click the associated > button. All NEs and Domains inside this domain automatically become part of the User Management Domain. *Note:* The "Root" domain cannot be added to the management domain. • *To add all of the network elements currently listed in the "Network Elements" list to the management domain,* select the name of the domain in the "Domains" list which contains the items you wish to add, then click the >> button that is associated with the "Network Elements" list. Now you can use the Remove button to selectively remove certain network elements from the management domain. • *To add individual network elements to the management domain,* select the name of the domain in the "Domains" list which contains the items you wish to add, then select the network element names in the "Network Elements" list, and click the associated > button. • *To delete items from the management domain,* select each item in the "Selected List" list, then click the Remove button. To delete all of the items from the list, click the Remove All button. • Any new domain or sub-domain created would automatically become part of the SEC Users Management Domain.
4	**Choose the appropriate action:** • *To apply modifications made to the management domain and close the Management Domains dialog box,* click the OK button. • *To apply modifications made to the management domain, but not close the dialog box,* as when you still might wish to make further modifications to management domains, click the Apply button. • *To close the dialog box without saving any modifications made to the management domain since the last apply operation,* click the Close button, then click No in the question box that appears.

End of Procedure

Management Domain Example

For this example, consider a synchronization network with the topology structure shown in Figure 28.

Figure 28. Management Domain Example



Management responsibility for the synchronization network has been apportioned among four users with usernames “adm1,” “adm2,” “usr1,” and “usr2.” The portions of the network that these users have responsibility for are shown in the “Domains” column of Table AJ. The process shown in the “Process” column of the table can be used to create the management domains.

Table AJ. Management Domain Example

User Name	Domains	Process (done in the Management Domains dialog box)
adm1	Domain “North” Domain “South”	• Select user “adm1.” • Select “North” in the “Domains” list, then click >. • Select “South” in the “Domains” list, then click >. • Click OK.
adm2	Domain “East” Domain “West”	• Select user “adm2.” • Select “East” in the “Domains” list, then click >. • Select “West” in the “Domains” list, then click >. • Click OK.

Table AJ. Management Domain Example (cont'd)

User Name	Domains	Process (done in the Management Domains dialog box)
usr1	Domain "North" Domain "South" NEs "E-1," "E-2," and "E-3"	• Select user "usr1." • Select "North" in the "Domains" list, then click >. • Select "South" in the "Domains" list, then click >. • Select "East" in the "Domains" list. • Select "E-1" in the "Network Elements" list, then click >. • Select "E-2" in the "Network Elements" list, then click >. • Select "E-3" in the "Network Elements" list, then click >. • Click OK.
usr2	Domain "East" Domain "West" NEs "S-1," "S-2," and "S-3"	• Select user "usr2." • Select "East" in the "Domains" list, then click >. • Select "West" in the "Domains" list, then click >. • Select "South" in the "Domains" list. • Click **>>** associated with the Network Elements list. • Select "S-4" in the "Selected List" list, then click Remove. • Select "S-5" in the "Selected List" list, then click Remove. • Select "S-6" in the "Selected List" list, then click Remove. • Click OK.

Note in Table AJ that a somewhat different process was used to create similar management domains for users "usr1" and "usr2:"

- For both of these users, full domains were added to the management domain simply by selecting their names in the "Domains" list, and clicking >.
- For user "usr1," individual Network Elements (NEs) were added to the management domain by selecting their names individually in the "Network Elements" list, and clicking >. This is one strategy for adding selected network elements to a management domain.
- For user "usr2," all of the NEs in a domain were added to the management domain by clicking >>, then the undesired ones were selected and removed

from the management domain using the Remove button. This is an alternate strategy for adding selected NEs to a management domain. This strategy is particularly useful if a domain holds numerous NEs, and you desire all but a few of them to be in the management domain.

Features Available to each User Class

Security-Class Users

For a TimePictra SECURITY level user, all menus and shortcut icons in the Launch Pad, and menu items in OpenView are **enabled**.

Administrator-Class Users

For a TimePictra ADMIN level user, the following menus and related shortcut icons in the Launch Pad, and menus in OpenView, are **disabled/missing**:

- AutoAction
- Admin
- Config
  - Firmware Download...
- Security
  - NE User Admin...
  - Management Domain...
- Defaults
  - Command Template...
- Misc
  - Force Unlock NE

User-Class Users

For a TimePictra USER level user, the following menus and related shortcut icons in the Launch Pad, and menus in OpenView, are **disabled**.

- AutoAction
- PassThru
- Admin
- Config
  - Modify Configuration...
  - Firmware Download...

- Security
  - NE User Admin...
  - Management Domain...
- Defaults
  - Command Template...
- Misc
  - Force Unlock NE
  - Forced Alarm Sync

9

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Configuration Management

The procedures in this chapter explain how to view and modify the current configuration settings of NEs, how to manage a database of default configurations, and how to download firmware to NEs.

Chapter 10

Overview

The TimePictra software provides the ability to view or modify the current configuration of NEs that are being managed by the system.

The software also provides the ability to download firmware upgrades to the EEPROMS on the various cards within a specified NE.

In This Chapter

The information in this chapter can be referenced when performing configuration management operations. The following sections are included in this chapter:

Viewing or Modifying the Current Configuration of NEs

This section explains how to view or modify the current configuration settings of a NE.

NE Firmware Upgrades

This section explains how to download firmware upgrades to NEs using TimePictra.

Sync Trail Management

This section explains Sync Trails Management.

10

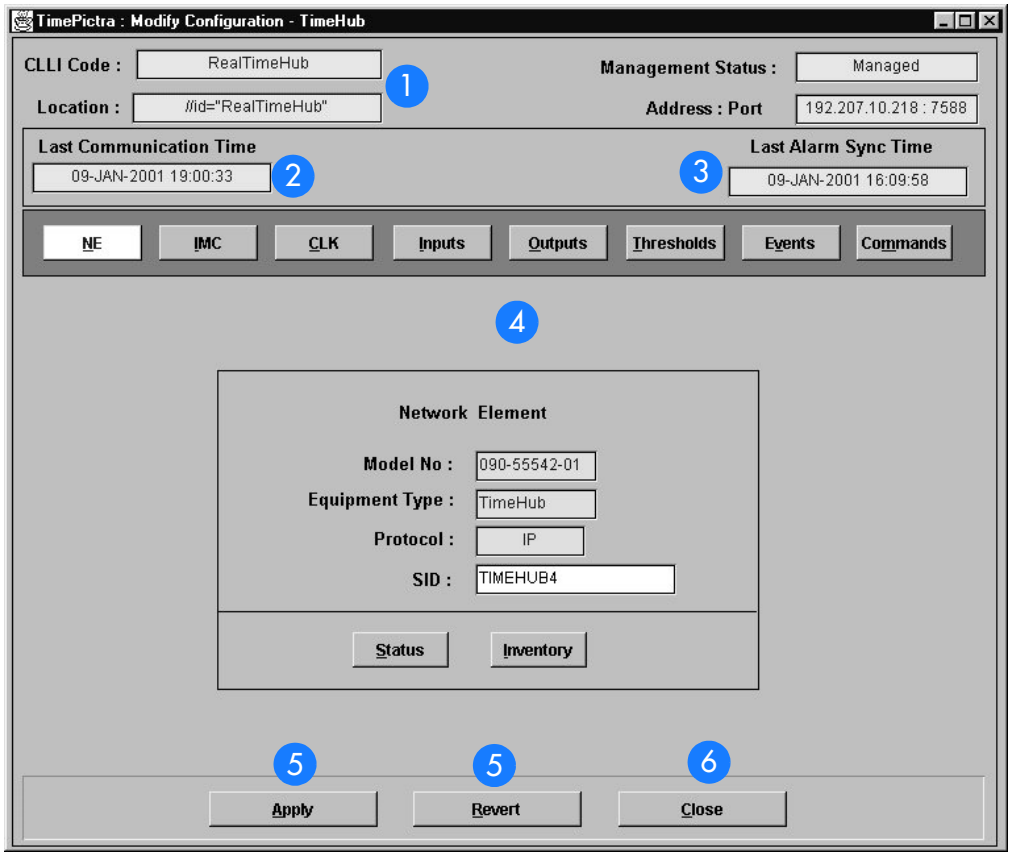
Viewing or Modifying the Current Configuration of NEs

The software provides dialog boxes to aid in viewing or modifying the current configuration of NEs. The Modify Configuration dialog box is used for modifying the current configuration of a specified NE, and the View Configuration dialog box is used for viewing the current configuration of a NE.

Figure 29, below, shows a representative Modify Configuration dialog box. The View Configuration dialog box is essentially identical, except that you cannot modify NE settings from within it.

The upper portion of the dialog box, which is referred to as the *header panel*, shows some basic information about the chosen NE, such as its CLLI code, management status, location, etc. Below the header panel are *context-switch buttons*, which determine the character of the lower portion of the dialog box, which is referred to as the *action panel*. The context switch buttons and action panel vary depending on the NE type selected. Table AK explains the dialog box.

Figure 29. Modify Configuration Dialog Box



10

Table AK. Modify Configuration Dialog Box Description

Item	Description
1	The CLLI Code, Location, Management Status, and Address Port of the selected NE is shown here. These fields cannot be edited; they reflect the NE that is selected in the synchronization network map or Launch Pad when the dialog box is invoked. *Note:* To modify configuration parameters, the management status of the selected NE must be *Managed*. However, when the status of the selected NE is *Unmanaged* or *Unavailable*, the Configuration View/Modify dialog box will still come up, but will cause an error if any changes are attempted.
2	The "Last Communication Time" field contains the date and time at which the last successful communication between the software and the selected NE took place. This communication can be the reception of an event, or any successful command/response sequence, such as successful reception of a response to a heartbeat (`RTRV-HDR`) message. *Note:* This field is not refreshed once the dialog box is opened.
3	The "Last Alarm Sync Time" field contains the date and time at which the alarm synchronization process last ran. Alarm Synchronization is a TimePictra process that obtains a list of active alarms from NEs and compares them with the alarms in the TimePictra database, and marks as cleared any alarms that are in the database but are no longer active in the NEs. *Note:* In the current version of the software, the alarm synchronization process runs at startup and then repeats every 12 hours or each time TimePictra changes its status from *Unavailable* to *Available*.
4	The row of context-switch buttons can be clicked to determine the category of configuration settings that can be viewed/modified in the lower portion of the dialog box (the *action panel*). The context-switch buttons vary in number and function depending on the NE type. The sections entitled *Network Element Settings* that are in the appendices of this manual explain the categories of settings for the various NEs.
5	Configuration changes made in the dialog box do not actually take effect until they are applied, at which time the TimePictra database and the database of the selected NE are modified to reflect the changes. The Apply button can be clicked to cause the configuration changes made in the dialog box to take effect. Clicking the Revert button restores to the dialog box the configuration changes that are currently stored in the database, effectively cancelling any changes to the dialog box that were made after the Apply button was last clicked. Note that if you make changes, then click one of the other context-switch buttons or move to another line item in the action panel, the software might require you to either apply (save) or not save those changes before further action takes place.
6	Clicking the Close button will close the dialog box. If changes were made to the configuration that were not applied when Close is clicked, a question box appears asking if you want to save (apply) the changes.

View the Current Configuration Settings of an NE

The configuration settings that appear in the View Configuration dialog box reflect the NE settings as stored in the TimePictra database, which might not reflect the actual current settings of the NE. Configuration inconsistencies can occur if settings are changed locally at the NE, such as changes made using a local craft terminal or command pass-through.

Procedure AS explains how to view the current configuration settings of an NE.

Procedure AS. Viewing the Current Configuration Settings of an NE

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE for which you want to view the current configuration settings.
2	Invoke the View Configuration dialog box: *Synchronization Map* - Click the View Configuration menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the View Configuration... shortcut icon, or choose View Configuration... from the Config menu. The View Configuration dialog box will appear. The initial category of settings displayed in the lower portion of the dialog box (the *action panel*) depends on the NE type selected. The setting category can be changed by clicking one of the other context-switch buttons.
3	Click on the appropriate context-switch button to select the desired category of current NE settings to view. The sections entitled *Network Element Settings that are* within the appendices of this manual provide descriptions of each setting category for the various NEs.
4	To close the View Configuration dialog box, click the Close button, then click OK when the question `Do you want to exit from View Configuration?` appears. *Note:* The Apply and Revert buttons have no function in the View Configuration dialog box.
End of Procedure	

Modify the Current Configuration Settings of an NE

Notes:

1. The NE must be in the managed state in order to modify the current NE settings.
2. The configuration settings that appear in the Modify Configuration dialog box reflect the NE settings as stored in the TimePictra database, which might not reflect the actual current settings of the NE. Configuration inconsistencies can occur if settings are changed locally at the NE, such as changes made using a local craft terminal or command pass-through.

Procedure AT explains how to modify the current configuration settings of an NE.

Procedure AT. Modifying the Current Configuration Settings of an NE

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE for which you want to modify the current configuration settings.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify Configuration menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu. The Modify Configuration dialog box will appear. The initial category of settings displayed in the lower portion of the dialog box (the *action panel*) depends on the NE type selected. The setting category can be changed by clicking one of the other context-switch buttons.
3	Click on the appropriate context-switch button to select the desired category of current NE settings to modify. The sections entitled *Network Element Settings* that are within the appendices of this manual provide descriptions of each setting category for the various NEs.
4	Modify the settings as is appropriate. The sections entitled *Network Element Settings* that are within the appendices of this manual explain the settings in each category for the selected NE. Each explanation contains the range and default value of the setting where applicable.
5	Choose the appropriate action: • *To apply the modifications to the current configuration of the NE*, click the Apply button. *Note:* If you make modifications then click one of the other context-switch buttons or make changes in another line item in the action panel, the software might require you to either apply (save) or not save those changes before allowing further action to take place. • *To cancel the last setting modification that was made in the current instance of the dialog box, and recall it*, click the Revert button *before* clicking the Apply button. • *To close the Modify Configuration dialog box*, click the Close button and answer appropriately to the questions asking if you want to save (apply) and exit.
End of Procedure	

Firmware Upgrades

The software contains functionality that enables the downloading of firmware upgrades to different cards on an NE from a file that is accessible on the network. The firmware code is downloaded to a specified NE using the Firmware Download dialog box.

The Firmware Download Process

The executable firmware for certain cards in certain NEs is stored in the card's main memory on a set of EEPROM memory chips, EEPROM is an acronym for Electrically Erasable Programmable Read Only Memory. At times, it might be necessary to upgrade the firmware on a card, in which case the firmware download process will be employed.

The firmware download process is designed so that the former version of firmware, then the version being updated, can be restored should a failure in the process occur.

Recovery from Firmware Download Process Failure

Should the firmware download process fail at any step, a recovery process can restore the former copy of firmware to the card's main memory, and restore the card to normal operating mode using the former copy of firmware.

The recovery process involves stepping backward through certain steps of the firmware download process.

For example, if the firmware download process fails at the Verify Main stage, recovery might consist of copying code from backup memory to main memory, and cancelling firmware download mode. This would re-establish card operation using the former version of firmware.

Firmware Download dialog box

Figure 30 and Table AL briefly explain the Firmware Download dialog box.

Figure 30. Firmware Download Dialog Box

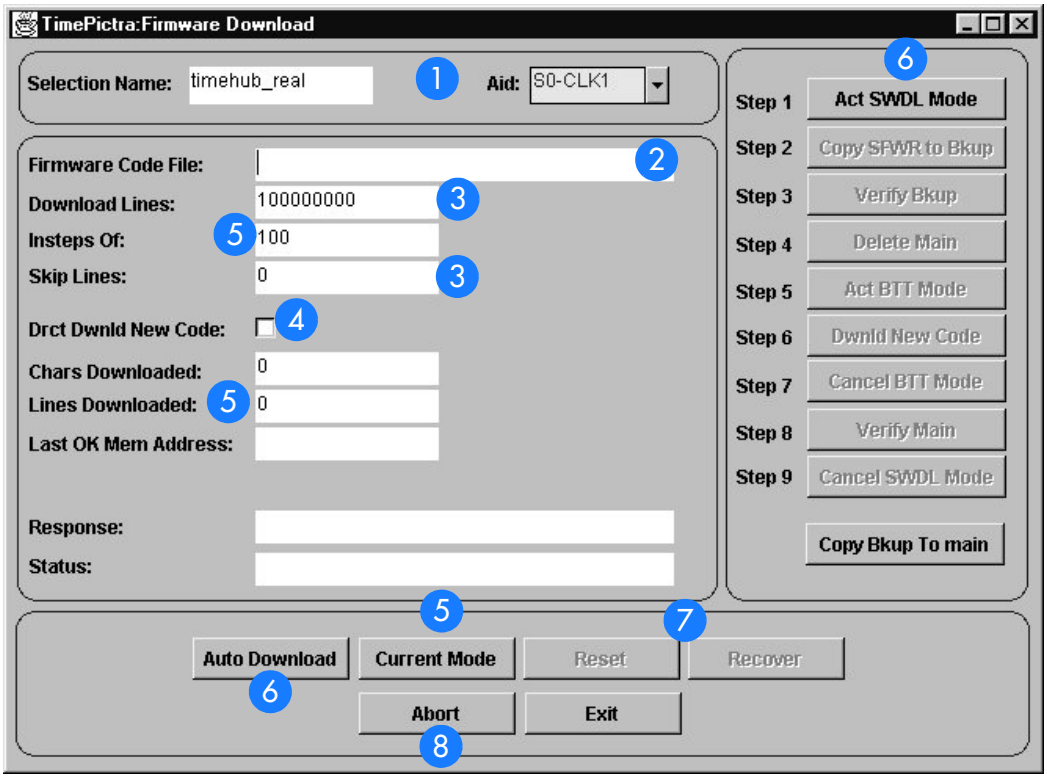


Table AL. Firmware Download Dialog Box Description

Item	Description
1	The name of the NE to where the firmware is to be downloaded (the target NE) appears in the Selection Name field. The name of the NE symbol that was selected on the map or Launch Pad prior to invoking this dialog box appears in this field; it cannot be changed in the dialog box. Use the Aid selection box to select the card to where the firmware is to be downloaded (the target card). The possible selections appear in the following form: *rack-card* where *rack* is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and *card* is the identifier of the card to where the firmware is to be downloaded.
2	The name of the specific file containing the firmware to be downloaded to the target card is entered in the Firmware Code File field. *Note:* File must be entered into this field with the filename and the file should exist under directory " `/var/opt/osmf/share/log/` ".

Table AL. Firmware Download Dialog Box Description (cont'd)

Item	Description
3	The information entered into these fields is used when specifying a portion of the firmware file to download to the target. This is useful when a single file contains multiple versions of firmware, or when continuing to download firmware from a point in the file after an interruption. The value entered into the Download Lines field determines the number of lines of firmware code that will be downloaded. If the number entered is large, such as the default value of 100000000, the entire file can be downloaded. The value entered into the Skip Lines field determines the line of firmware code in the file at which to start downloading. The default value of 0 indicates that firmware will download starting with the first line of firmware code in the file. Skip Lines is always referenced to the beginning of the file. Note: Lines of firmware code are delimited by the newline: \n delimiter.
4	The Drct Dwnld New Code check-box determines whether or not a newly initiated firmware download process begins with step 1, or step 6. If the check-box is selected, the firmware download process begins at step 6, thereby skipping the step where main memory is erased. This is useful when you need to append code to the code that is already stored in main memory, as when the original transfer was interrupted. If the check-box is not selected, the firmware download process begins at step 1. This is the normal firmware download mode, where the code being downloaded replaces the code previously stored in main memory.
5	The In Steps Of field determines how often the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields are updated. Should the firmware download operation fail, the total number of characters and lines to be accepted by the target card, as well as the address of the last accepted line of code, will be displayed in these fields. The Response/Status fields show the status of the current step (In Progress, Done, etc.), and any error messages that are generated. The current operation mode can also be displayed by clicking the Current Mode button. There are three operation modes: - NORMAL - The card is in the normal functioning mode of operation. - SWDL - The card is in firmware download mode. In this mode, the card ceases any activity that is not associated with firmware downloading. -SWDL BTT - The card is in bulk text transfer mode. In this mode, the card will accept segments of firmware code.
6	These buttons are used to control the firmware download process. The firmware download process consists of a number of steps. The buttons in the manual operation portion of the dialog box (labeled `Step x`) are used to manually step through the process. If the Auto Download button is clicked, the firmware download process proceeds through the nine steps automatically. Should the process fail, the button representing the step at which the failure occurred will be active, with all other buttons de-emphasized (grayed out). These steps can vary for different NE types.

Table AL. Firmware Download Dialog Box Description (cont'd)

Item	Description
7	Once the firmware download process has been aborted, the Recover button can be clicked to initiate the recovery process. The recovery process entails rolling back certain steps in the firmware download process. Ultimately, the original copy of firmware can be restored and the card can be restored to normal operating mode if desired. You control which steps of the firmware download process you wish to roll back. The Reset button is used to reset the dialog box. Basically, the firmware download process is reset to the first step. Note that aborting and then resetting while firmware downloading is in process might leave the target card in an undesired state.
8	The firmware download process can be aborted at any time by clicking the Abort button, however, the current step will complete before the process aborts.

Sync Trail Management

Sync Trails in Openview

Sync Trails are used to represent a signal path from the output of one Network Element to the input of another Network Element, or the output of a GPS to the input of a Network element. If a problem exists with the signal path represented by the sync trail symbol, the color of the symbol changes to indicate the nature of the problem.

The procedures in this section explain how to create and delete a sync trail on the Openview Synchronization Map. Note that the following must be considered for the link to be successfully created.

- The output port that will be the source of the link must be enabled and properly configured to be compatible with the input channel that will be the destination of the link (refer to the output ports subsection in the Network Element Settings section of the appendix for the NE to be configured, for a description on the output port settings).

- Likewise the input channel that will be the destination of the link must be enabled and properly configured to be compatible with the output port that will be the source of the link (refer to the input channel subsection in the Network Element Settings section of the appendix for the NE to be configured, for a description on the input channel settings).

When a sync trail connection between symbols on different sub-maps are made, a ghost symbol is automatically inserted into the sub-map where target Network Element is located.

When more than one sync trail is created for two Network Elements, the single sync trail shown in the map represents multiple connections. This is known as a Meta connection. Double clicking on the Meta-connection opens a window in which the individual connections can be viewed. Status is always propagated from individual connections to the Meta-connection using TimePictra status propagation rules.

Sync trails provide an interface that represents the actual connections between Network Elements. Creation of a Sync Trail has no relation to the actual physical connection between the Network Elements. The user needs to ensure that actual connections exist between the source and the target Network Element before creating a Sync trail for it.

Notes:

1. Users of the USER user class can view, sort, filter, and view summary sync trail information, but cannot create or delete sync trails. Users of the SEC and ADMIN user classes have full sync trail management capability.
2. Sync Trails are only shown in the Openview Synchronization Map; they are not shown in the Launch Pad. Even though they can be created using the Launch Pad, they can only be viewed on the Openview map.

Figure 31 and Table AM briefly explain the main Sync Trail dialog box.

Figure 31. Sync Trail Dialog Box

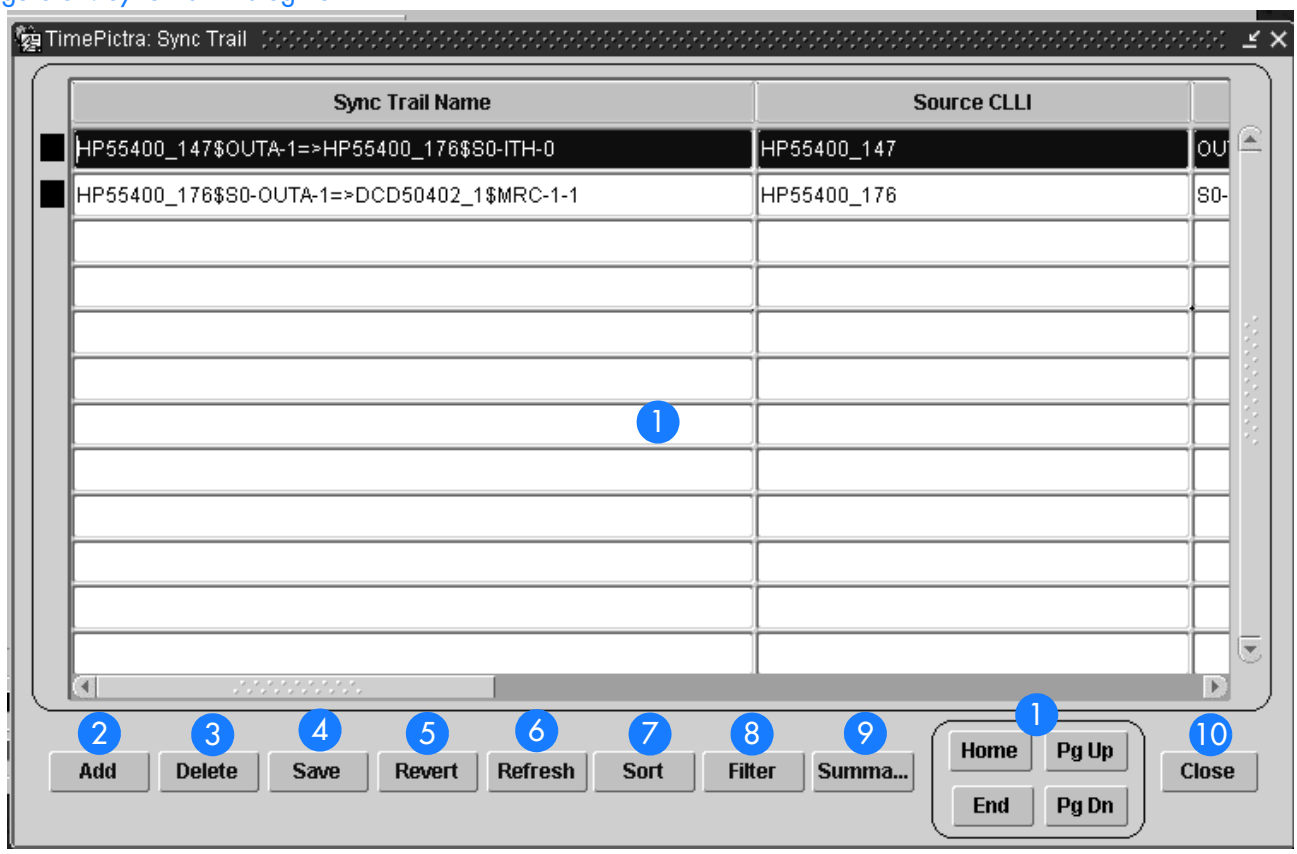


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Table AM. Sync Trail Dialog Box Description

Item	Description
1	This area of the dialog box displays the sync trail information. The horizontal and vertical scroll-bars, as well as the Home, Pg Up, Pg Dn, and End buttons can be used to view the information in the dialog box. The information in the dialog box is shown in tabular form. The various columns are explained below: *Sync Trail Name*: this column lists the names of all existing Sync Trails. *Source CLLI*: this column provides information showing the name of source CLLI for the respective Sync Trail. *Source AID*: this column provides information showing the source AID for the respective sync trial. *Target CLLI*: this column provides information showing the name of Target CLLI for the respective Sync Trail. *Target AID*: this column provides information showing the Target AID for the respective sync trial. *Severity*: this column shows the current status of the Sync Trail. Depending on the alarms that are active for the Network Element involved in the sync trail, the severity is automatically calculated and shown in the Openview Synchronization Map using different colors. *Remarks*: this column shows any user comments that were entered by the creator of the sync trail.

Table AM. Sync Trail Dialog Box Description (cont'd)

Item	Description
2	Adds a new sync trail in the Openview Map. It brings up another dialog box where the user makes choices from the listed items. This is explained under the procedure to add Sync Trails. *Note:* Only users of the Administrator and Security classes can add sync trails, and sync trails can only be added where the source and target NE are in the user's management domain.
3	Deletes an existing Sync Trial. *Note:* Only users of the Administrator and Security classes can delete sync trails, and sync trails can only be deleted that are in the user's management domain.
4	Saves all changes made in the dialog box.
5	Reverts changes to the last changes that were saved.
6	Refreshes the dialog box and shows all updates, if made by other users simultaneously.
7	Displays another dialog box where the user enters the appropriate sorting criteria.
8	Displays another dialog box where the user can apply filtering criteria to the main Sync Trail dialog box so that only sync trails involving certain NEs are shown.
9	Displays a dialog box in which a summary of input channel and output port availability for the selected NE can be viewed.
10	Closes the dialog box.

Opening the main Sync Trail Dialog Box

Procedure AU explains how to open the Sync Trail dialog box.

Procedure AU. Opening the main Sync Trail Dialog Box

Step	Action
Notes: 1. Users of the User class can open the main Sync Trail dialog box, and view, sort, filter, and view summary sync trail information, but cannot create or delete sync trails. 2. Users of the Administrator and Security classes have full sync trail management capability.	
1	In the synchronization network map or Launch Pad, select the NE for which sync trails will be viewed or otherwise managed, if desired. When an NE is selected prior to invoking the main Sync Trail dialog box, the dialog box will display only those sync trails for which the selected NE is a source or target NE. If no NE is selected prior to invoking the main Sync Trail dialog box, the dialog box will display all sync trails in the database, regardless of the user's management domain.
2	Invoke the main Sync Trail dialog box: *Launch Pad* - Choose Sync Trails... from the Config menu. *Synchronization Map* - Click on the TimePictra menu option in the main menu, then Configuration in the drop-down menu, followed by Sync Trails.
3	When the user clicks on a sync trail record in the main Sync Trail dialog box, the background color of the record depicts the sync trail's severity. The user can also view the equivalent severity information in the record's Severity column. Following is the color schema: Color Status Object Description Red Critical the target NE's AID has a status of Critical for the sync trail. Orange Major the target NE's AID has a status of Major for the sync trail. Yellow Minor the target NE's AID has a status of Minor for the sync trail. Black Normal the target NE's AID has no alarms or has a status of Normal for the sync trail. Black Unmanaged the target NE is unmanaged. Black Unknown the target NE's status is unknown. *Notes:* 1. When a Sync Trail is added, the severity is automatically calculated to display the target NE AID's status. 2. If the target NE AID's status changes, the Sync Trail status automatically changes.
	End of Procedure

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Viewing NE Input/Output Information

Note: **Users of the User, Administrator, and Security classes can view NE input/output summary information.**

When an NE is selected on the Synchronization Map or Launch Pad before the main Sync Trail dialog box is invoked, the Summary button on the main Sync Trail dialog box is active, and clicking on it invokes the *ne_name* Summary dialog box, in which usage information for the NE's various input channels and output ports can be viewed.

Figure 32 shows the *ne_name* Summary dialog box when an NE with the name

HP55400_147 is selected, and Table AN briefly explains the *ne_name* Summary dialog box.

Figure 32. *ne_name* Summary Dialog Box

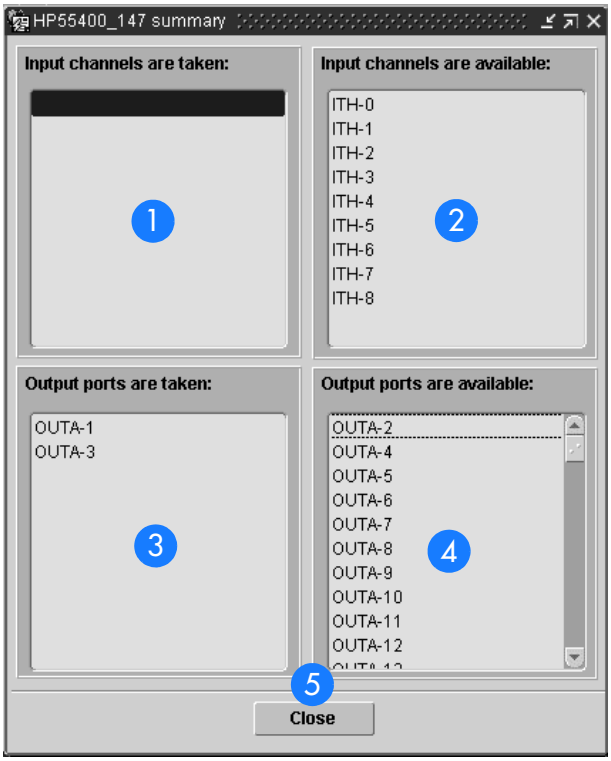

Table AN. *ne_name* Summary Dialog Box Description

Item	Description
1	The input channels shown in this area are already allocated to a sync trail and cannot be used in the creation of other sync trails.
2	The input channels shown in this area are available for use in the creation of other sync trails.
3	The output ports shown in this area are already allocated to a sync trail and cannot be used in the creation of other sync trails.
4	The output ports shown in this area are available for use in the creation of other sync trails.
5	The Close button closes the *ne_name* Summary dialog box.

Sorting Fields for Display in the main Sync Trail Dialog Box

Note: Users of the User, Administrator, and Security classes can sort sync trail information.

When the Sort button in the main Sync Trail dialog box is clicked, the Sync Trail Sorting Criteria dialog box is displayed. In this dialog box, the user can select, at most, 3 columns from the main Sync Trail dialog box as the selected order to sort the Sync Trail information in the main dialog box.

Figure 33 and Table AO briefly explain the Sync Trail Sorting Criteria dialog box.

Figure 33. Sync Trail Sorting Criteria Dialog Box

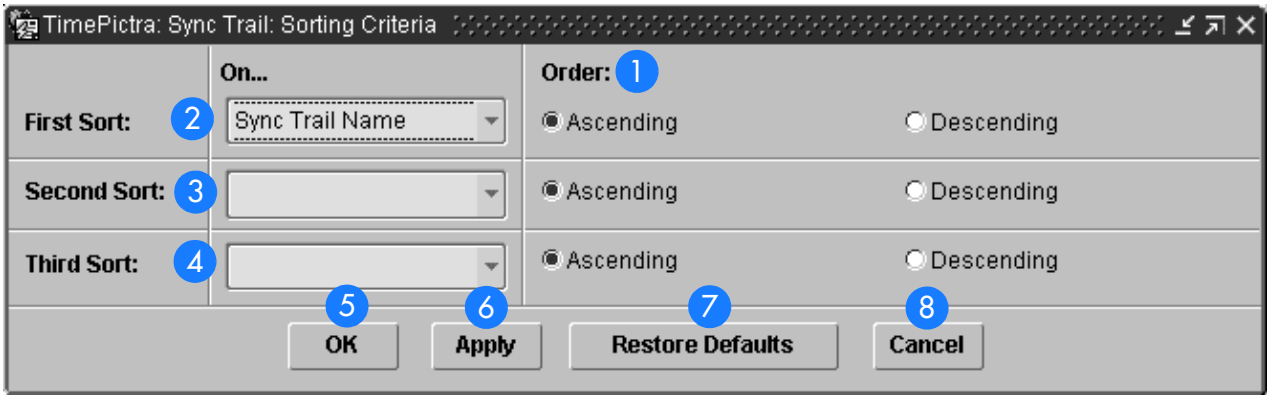

Table AO. Sync Trail Sorting Criteria Dialog Box Description

Item	Description
1	For each sort, the user needs to specify the Ascending or Descending order. Ascending is the default choice.
2	The name of the field in the main Sync Trail dialog box which forms the first sort criteria.
3	The name of the field in the main Sync Trail dialog box which forms the second sort criteria.
4	The name of the field in the main Sync Trail dialog box which forms the third sort criteria.
5	Applies the selected sort criteria and closes the dialog box.
6	Applies the sort criteria but does not close the dialog box.
7	Sets the sorting criteria to the default condition, in which the Sync Trail Name column in the main Sync Trail dialog box is sorted.

Table AO. Sync Trail Sorting Criteria Dialog Box Description (cont'd)

Item	Description
8	Closes the dialog box without applying the sort criteria.

Notes:

1. The user can also sort records in the main Sync Trail dialog box based on a particular column by clicking on the label for that column.
2. The Remarks column in the main Sync Trail dialog box cannot be used as a sorting criteria.

Filtering Sync Trails for Display in the main Sync Trail Dialog box

Sync trail information as displayed in the main Sync Trail dialog box can be filtered so that sync trails involving only certain Network Elements are displayed. The filtering criteria is selected in the Sync Trail Network Element Filter dialog box. Figure 34 and Table AP briefly explain the Sync Trail Network Element Filter dialog box.

Figure 34. Sync Trail Network Element Filter Dialog Box

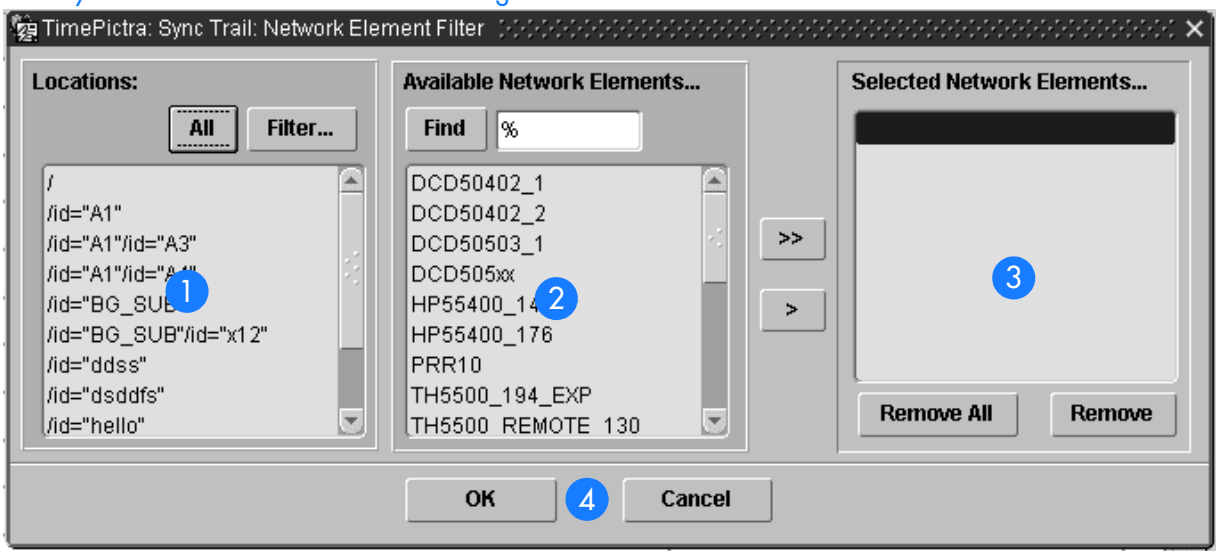

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Table AP. Sync Trail Network Element Filter Dialog Box Description

Item	Description
1	The Locations area shows the locations (Root domain and sub-networks) that are contained in the user's management domain. The All button can be clicked to show all locations in the user's management domain, or if the Filter... button is clicked, a separate Location Filter dialog box appears, in which a selection of locations to be displayed in the Locations area can be made. Only NEs contained in those locations that are shown in the Locations area will be visible in the Available Network Elements... area.
2	The Available Network Elements... area lists all of the network elements that potentially can be included in the filtering criteria.
3	The Selected Network Elements... area lists all of the network elements that will be included in the filtering criteria when the filtering criteria are applied. Only sync trails having these Network Elements as a source or target will be displayed in the main Sync Trail dialog box when the filtering criteria are applied.
4	Clicking the OK button applies the filtering criteria and closes the Sync Trail Network Element Filter dialog box. Clicking the Cancel button closes the dialog box without applying the filtering criteria.

Procedure AV explains how to use the sync trail filtering feature.

Procedure AV. Filtering Sync Trails for Display in the main Sync Trail Dialog box

Step	Action
Note: Users of the User, Administrator, and Security classes can use the sync trail filtering feature.	
1	Invoke the main Sync Trail dialog box, if it has not already been invoked. Refer to procedure AU, above, for information on how to invoke the main Sync Trail dialog box.
2	In the main Sync Trail dialog box, click the Filter button to invoke the Sync Trail Network Element Filter dialog box.
3	In the Sync Trail Network Element Filter dialog box, select the desired locations under "Locations" to show the network elements contained in those locations in the "Available Network Elements…" scroll box. The All button can be clicked to show all locations that are in the user's management domain, and the Filter… button can be used to narrow the selection of locations.
4	To select individual network elements, select them in the "Available Network Elements…" scroll box, click > to transfer them to the "Selected Network Elements…" scroll box, or >> to transfer all network elements shown in the "Available Network Elements…" scroll box to the "Selected Network Elements…" scroll box. *Notes:* 1. Once the filtering criteria are applied, only the sync trails involving those network elements that are included in the "Selected Network Elements..." scroll box will be shown in the main Sync Trails dialog box. 2. Items that have been transferred to the "Selected Network Elements..." scroll box can be removed using the Remove and Remove All buttons

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Procedure AV. Filtering Sync Trails for Display in the main Sync Trail Dialog box (cont'd)

Step	Action
5	Click OK to add the selected network elements to the filtering criteria and close the Sync Trail Network Element Filter dialog box, or Cancel to close the Sync Trail Network Element Filter dialog box without modifying the filtering criteria.

End of Procedure

Adding a Sync Trail

When the Add button is clicked in the main Sync Trail dialog box, the Add Sync Trail dialog box is displayed. In the Add Sync Trail dialog box, the user selects the Target CLLI and the Source CLLI, and their respective AIDs. The system then generates the sync trail name. Note that the user cannot specify a custom name for the sync trial; it is generated by the system automatically by clicking the Get button. The Get button remains disabled until the required fields are populated.

Figure 35 and Table AQ briefly explain the Add Sync Trail dialog box.

Figure 35. Add Sync Trail Dialog Box

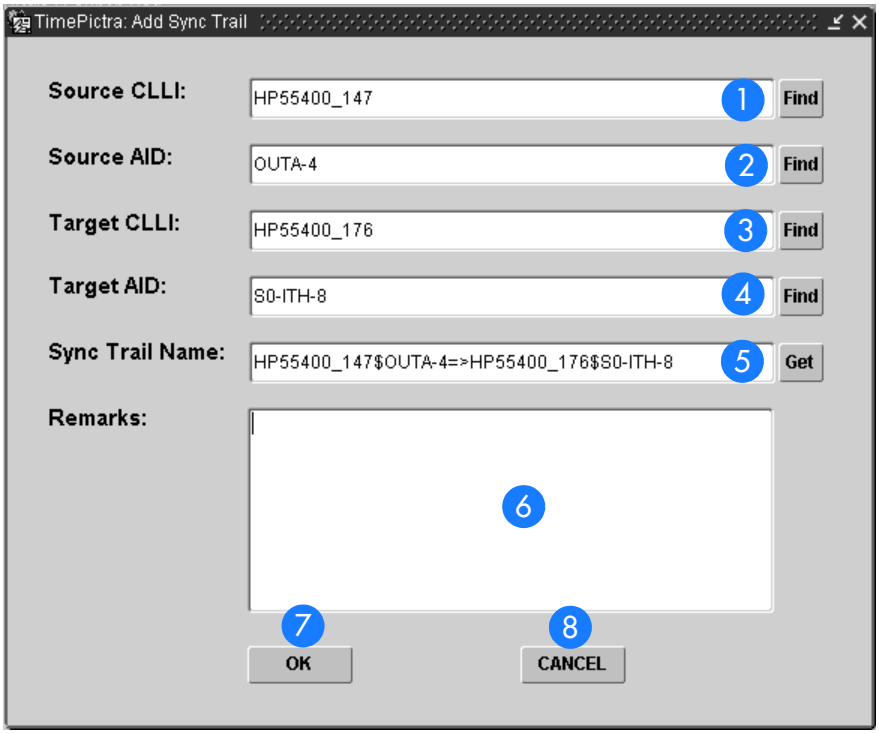

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Table AQ. Add Sync Trail Dialog Box Description

Item	Description
1	The user is required to pick the name of the Network Element which will be the Source for the Sync Trail. Clicking on the Find button in front of this field provides a sub-box in which the Source CLLI can be chosen. The user can only select a Network Element that is listed in the sub-box.
2	The user can enter a custom AID name in this field, or click on the Find button in front of this field to invoke a sub-box in which the Source AID can be chosen.
3	The user is required to pick the name of the Network Element which will be the target for the Sync Trail. Clicking on the Find button in front of this field provides a sub-box in which the Target CLLI can be chosen. The user can only select a Network Element that is listed in the sub-box.
4	The user can enter a custom AID name in this field, or click on the Find button in front of this field to invoke a sub-box in which the Target AID can be chosen.
5	Clicking the Get button causes the system to automatically generate the Name for the Sync Trail based upon the selections made. The user needs to click this button again if any changes are made to the Source/Target CLLI or Source/Target AID. The sync trail name is automatically provided by the system; the user is not allowed to enter a custom name. The name depicts the fully qualified path for the Source and the Target Network Element.
6	The user can enter any kind of remarks for the sync trail in this field.
7	The OK button is only active once the user has made all of the necessary selections and clicked on the Get button. Clicking OK saves the information entered by the user, and automatically creates the Sync trail in the Openview Synchronization Map.
8	The Cancel button cancels the add sync trail operation and brings the user back to the main Sync Trail dialog box.

Procedure AW explains how to add a sync trail.

Procedure AW. Adding a Sync Trail

Step	Action
Note: Users of the Administrator and Security classes can add sync trails.	
1	Invoke the main Sync Trail dialog box, if it has not already been invoked. Refer to procedure AU, above, for information on how to invoke the main Sync Trail dialog box.
2	In the main Sync Trail dialog box, click the Add button to invoke the Add Sync Trail dialog box.
3	Click the Find button that is adjacent to the Source CLLI field. Clicking on the Find button invokes a sub-box in which the CLLI for the NE that will be the source of the sync trail can be selected. The sub-box appears similar to that shown below: The sub-box displays the CLLI for those NEs that are in the user's management domain. In the sub-box, the user can find the CLLI that will be the source of the sync trail, then click the OK button to confirm the selection or the Cancel button to cancel the selection.
4	Enter a custom AID or valid AID name into the Source AID field, or click the Find button that is adjacent to the Source AID field to invoke a sub-box in which a source AID name can be selected. The sub-box is similar to the sub-box shown in step 3, above. After making the appropriate selection, click the OK button in the sub-box to confirm the selection. *Note:* If the user defines a custom AID for the Source Network Element, the system will not be able to check the health of the respective sync trail.
5	Click the Find button that is adjacent to the Target CLLI field. Clicking on the Find button invokes a sub-box in which the CLLI for the NE that will be the target of the sync trail can be selected. The sub-box is similar to the sub-box shown in step 3, above. The sub-box displays the CLLI for those NEs that are in the user's management domain. In the sub-box, the user can find the CLLI that will be the target of the sync trail, then click the OK button to confirm the selection or the Cancel button to cancel the selection.

Procedure AW. Adding a Sync Trail (cont'd)

Step	Action
6	Enter a custom AID or valid AID name into the Target AID field, or click the Find button that is adjacent to the Target AID field to invoke a sub-box in which a target AID name can be selected. The sub-box is similar to the sub-box shown in step 3, above. After making the appropriate selection, click the OK button in the sub-box to confirm the selection. *Note:* If the user defines a custom AID for the Target Network Element, the system will not be able to check the health of the respective sync trail.
7	Click the Get button that is adjacent to the Sync Trail Name field. Clicking on the Get button causes the system to automatically generate the Name for the sync trail based upon the selections made. The name depicts the fully qualified path for the source and the target network element.
8	Enter remarks, if desired, into the Remarks field.
9	Click the OK button to proceed with the sync trail creation operation, or the Cancel button to close the dialog box without saving the selections and creating the sync trail.
10	If OK was clicked, a question box containing the message "Do you want to save?" is displayed. Click Yes to save the selections and create the sync trail, or No to close the dialog box without saving the selections and creating the sync trail.
11	Click the Save button in the main Sync Trail dialog box.

End of Procedure

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Note: **If the target Network Element and the source Network Element are not on the same subnet, a Ghost symbol for the source element is automatically created on the sub-map where the target element exists. Deletion of a sync trail does not automatically delete the ghost symbol if any was created by the Add Sync Trail operation.**

Deleting a Sync Trail

Procedure AX explains how to delete a sync trail.

Procedure AX. Deleting a Sync Trail

Step	Action
Note: Users of the Administrator and Security classes can delete sync trails.	
1	Invoke the main Sync Trail dialog box, if it has not already been invoked. Refer to procedure AU, above, for information on how to invoke the main Sync Trail dialog box.
2	In the main Sync Trail dialog box, click on the record for the sync trail that is to be deleted. *Note:* Only sync trails that are in the user's management domain can be deleted.
3	Click the Delete button. If the selected sync trail is in the user's management domain, it will be deleted when the Delete button is clicked. If the selected sync trail is not in the user's management domain, a message box stating so will be displayed when the Delete button is clicked.
4	Click the Save button to finalize the delete operation, or the Revert button to undo the delete operation.
End of Procedure	

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Defaults Management

The procedures in this chapter explain how to manage a database of default configurations and how to maintain a user defined template containing TL1 Command Instruction Sets.

Chapter 11

Overview

The TimePictra Software provides the ability to create and store a database of defaults configuration.

The software also provides the capability to maintain a user defined template containing TL1 Command Instruction Sets.

In This Chapter

The information in this chapter can be referenced when performing defaults management operations. The following sections are included in this section:

Managing Default Configuration

This section explains how to create, modify or delete default configuration for NE's.

Audit Operation

This section explains how to carry out Direct Audit Operations on the NE's.

Command Templates

This section explains how to create and use the command templates defined by the user for different NE's.

Managing Default Configurations

The software has the ability to maintain a database of default configurations with respect to different types of NEs. There are several dialog boxes that are involved in default configuration management.

Configuration Defaults (main screen) dialog box

The Configuration Defaults (main screen) dialog box is the dialog box that is invoked when the Config Defaults... menu item is chosen from the Defaults menu on the Launch Pad. Figure 36 and Table AR briefly explain the Configuration Defaults (main screen) dialog box.

Figure 36. Configuration Defaults (main screen) Dialog Box

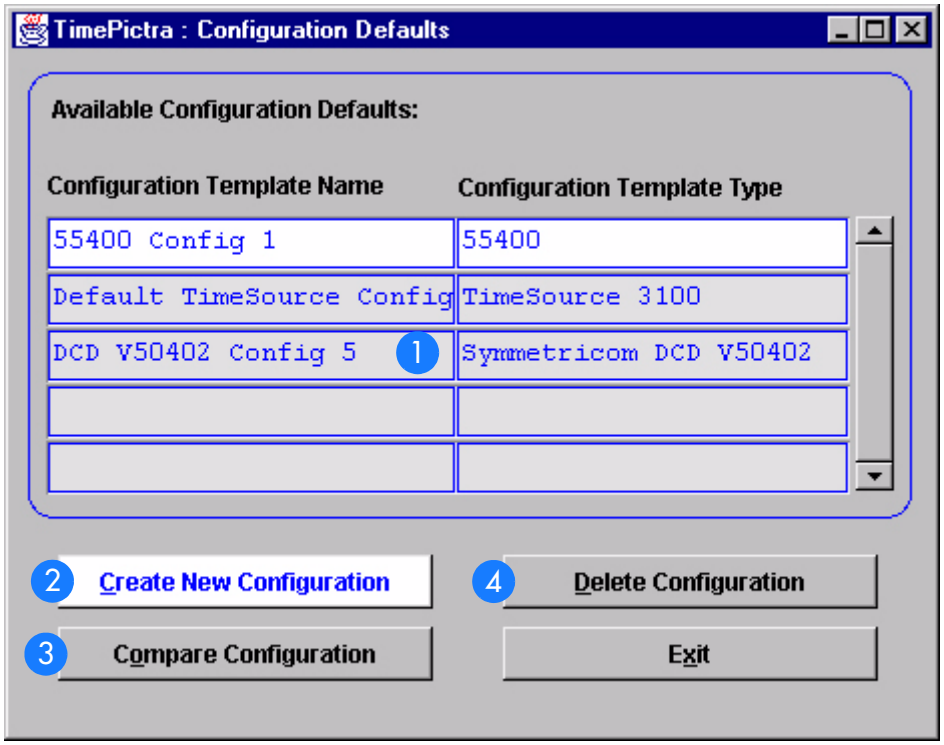

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Table AR. Configuration Defaults (main screen) Dialog Box Description

Item	Description
1	The Available Configuration Defaults area of the dialog box lists all of the default configurations that are currently stored in the TimePictra default configuration database. The Configuration Template Name column lists the name of the configuration default as given when it was created. The Configuration Template Type column lists the type of NE that the configuration default is applicable to. To perform an operation on an existing default, the default is selected here first, then one of the buttons below this area is clicked to continue the operation. These defaults can also be used for operations on other NEs of the same NE type as the NE type from which the default was created, and this can be used as powerful tools to check deviation in NE configuration.
2	This button can be clicked to invoke the Create Configuration dialog box, from where the default configuration creation operation can be continued through completion.
3	The current configuration of an NE can be compared against one of the default configuration templates. The configuration template against which the desired NE is to be compared can be selected in the Available Configuration Defaults area, and this button can then be clicked to invoke the Select Network Element dialog box, from where the configuration compare operation can be continued through completion.
4	A default configuration to be deleted can be selected in the Available Configuration Defaults area, and this button can then be clicked to initiate the deletion sequence. A question box is presented before the default is actually deleted.

Create Configuration dialog box

The Create Configuration dialog box is used when creating a new configuration default. Configuration defaults can be created from either an existing configuration default, or from the configuration of an existing NE. Figure 37 and Table AS briefly explain the Create Configuration dialog box.

Figure 37. Create Configuration Dialog Box

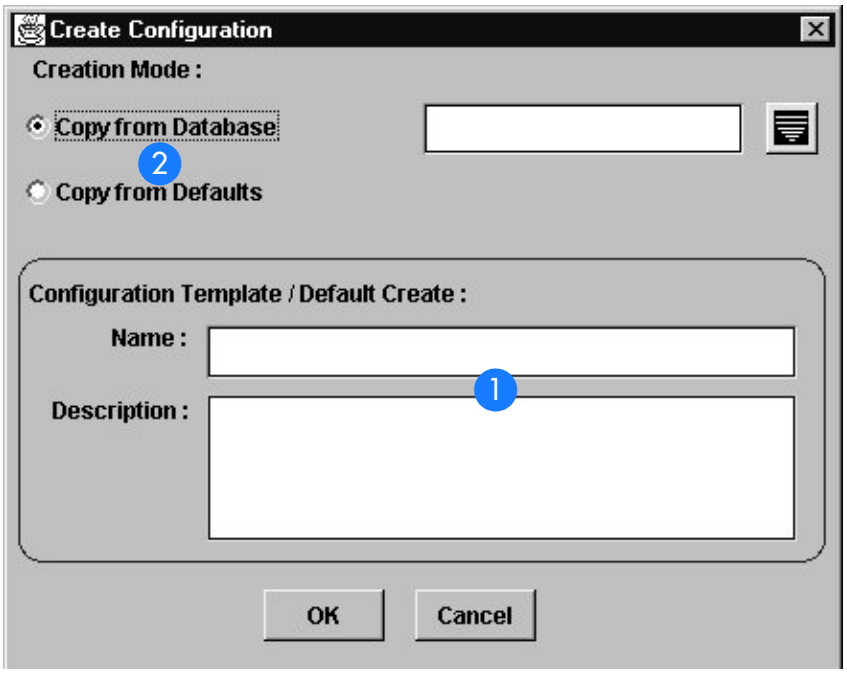

Table AS. Create Configuration Dialog Box Description

Item	Description
1	Assign a unique Name when a configuration default is created. It must be given a unique identifier name of not more than 10 characters in length. A description must be added in the Description field. The description cannot exceed 80 characters in length.
2	Choose a copy of settings from either an existing configuration default or the database. When Copy From Defaults is chosen, a separate selection box will be invoked which presents the name of an existing configuration default to use as the source for the default being created. When Copy From Database is chosen, a separate selection box can be invoked which presents the name of all existing NE to use as the source for the new default. *Note:* The source of the new default when Copy From Database is chosen is actually the NE's settings as stored in the TimePictra database.

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Select Network Element dialog box

The current configuration of an NE can be compared against one of the default configuration templates using this dialog box.

Figure 38 and Table AT briefly explain the Select Network Element dialog box.

Figure 38. Select Network Element Dialog Box

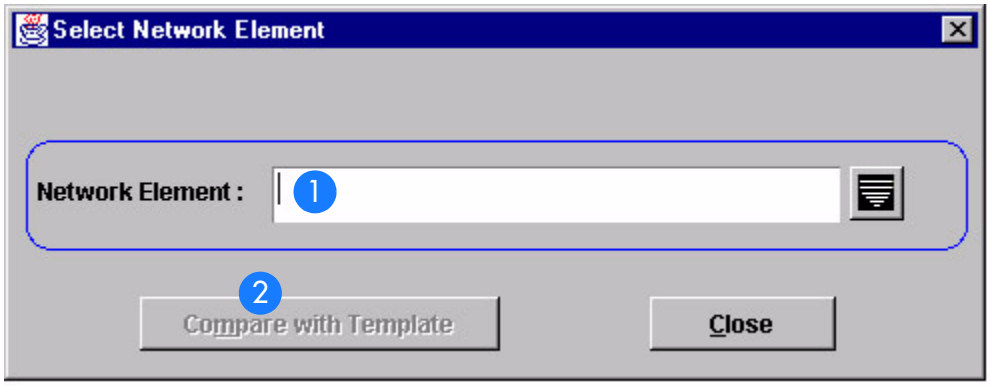

Table AT. Select Network Element Dialog Box Description

Item	Description
1	The NE for which the compare or audit operation is to be performed is selected and displayed in this field. Clicking the button that is to the right of the field invokes a sub-box in which the desired NE can be selected. During compare operations, the current TimePictra Database configuration of the NE shown in the Network Element field is compared against the template that was selected in the Configuration Defaults (main screen) dialog box.
2	Clicking the Compare with Template button begins the compare process between the selected NE and the template that was selected in the Configuration Defaults (main screen) dialog box before the dialog box was invoked. After the compare operation completes, the results are displayed in a Difference Log.

Create a Configuration Default

Creating a Configuration Default is described in Procedure AY.

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Procedure AY. Create a Configuration Default

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Invoke the Configuration Defaults (main screen) dialog box: *Synchronization Map* - Click the Configuration Defaults menu item from the Defaults menu. *Launch Pad* - Choose Config Defaults... from the Defaults menu.

Procedure AY. Create a Configuration Default (cont'd)

Step	Action
2	In the Configuration Defaults (main screen) dialog box, click the Create New Configuration button to invoke the Create Configuration dialog box.
3	Enter a unique name into the Name field of the Create Configuration dialog box. The identifier cannot exceed ten characters in length. This identifier will later be used when referencing the template.
4	Enter a description into the Description field of the dialog box. Note that the description is optional. The description can be up to 80 characters in length.
5	In the Creation Mode area of the dialog box, choose the desired source for the new configuration default. New configuration defaults are created by copying the settings of an existing configuration. You can choose either of two sources: Copy From Defaults - Use this option to select the settings of an existing configuration default to use as the source for the new default being created. Click on the Copy From Defaults radio button to select it, then click the button to the right of the field to invoke a selection sub-box, choose the identifier of the desired source configuration default in the sub-box, and click OK in the sub-box to set the selected default as the source. Copy From Database - Use this option to select the configuration data of an existing NE to use as the source for the new default being created. Click on the Copy From Database radio button to select it, then click the button to the right of the field to invoke a selection sub-box, choose the name of the desired source NE in the sub-box, and click OK in the sub-box to set the selected NE as the source. *Note:* The source of the new default when Copy From Database is chosen is actually the NE's settings as stored in the TimePictra database.
6	Click OK, then click the Yes button when the question `Do you want to Create Configuration?` appears, to create the configuration default.
7	Click the Exit button in the Configuration Defaults (main screen) dialog box to close it, then click Yes to the question `Do you want to exit from Configuration Defaults?`.

End of Procedure

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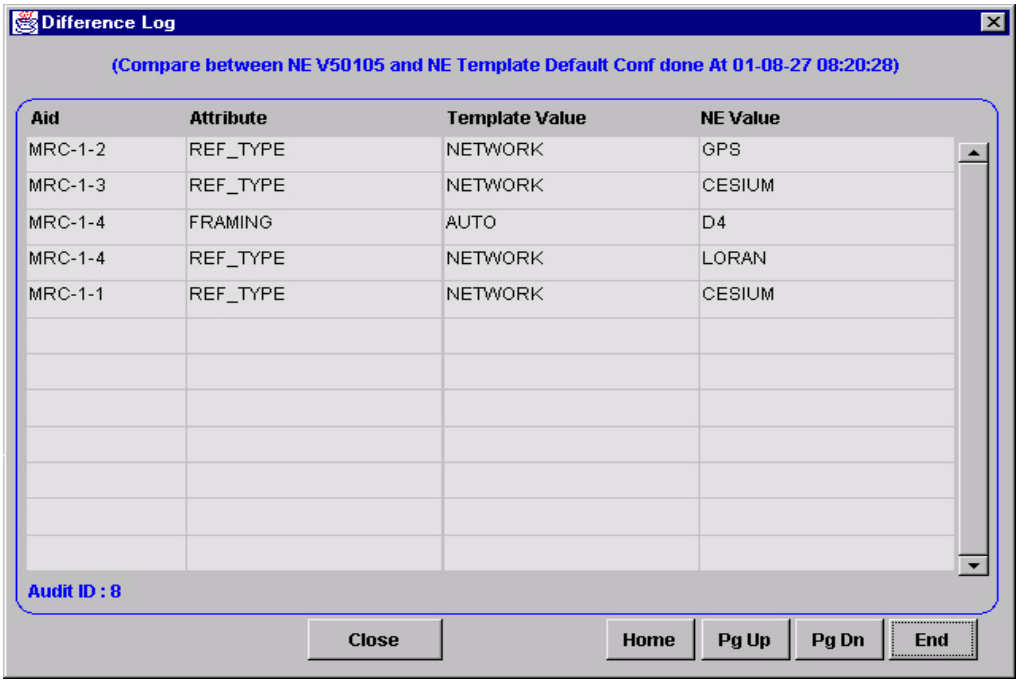
Perform a Compare Operation

Performing a configuration compare operation is described in Procedure AZ.

Procedure AZ. To Perform a Compare Operation

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Invoke the Configuration Defaults (main screen) dialog box: *Synchronization Map* - Click the Configuration Defaults menu item from the Defaults menu. *Launch Pad* - Choose Config Defaults... from the Defaults menu.
2	In the Configuration Defaults (main screen) dialog box, select the configuration template that will be used in the compare operation and press OK. *Note:* Make sure that the selected Configuration Default represents the same NE Type in relation to the Type of NE for which the compare operation will be done.
3	Click the Compare Configuration button.
4	In the Select Network Element dialog box that appears, click the button that is to the right of the Network Element field, then select the NE for which the compare operation is to be performed in the sub-box that appears.

Step	Action
5	Click the Compare with Template button. As the compare operation is taking place, a message is displayed. When the compare operation completes, a Difference Log appears, which is similar to the following figure:  Any configuration differences between the NE's configuration as stored in the TimePictra database and the selected configuration template are displayed in the Difference Log. If the difference information exceeds what can be displayed in the display area of the Difference Log, use the Home, Pg Up, Pg Dn, and End buttons as well as the vertical scroll bar to view it.
6	Click the Close button in the Difference Log to close it.
7	Click the Exit button in the Configuration Defaults (main screen) dialog box to close it, then click Yes to the question `Do you want to exit from Configuration Defaults?`.

End of Procedure

Aid	Attribute	Template Value	NE Value
MRC-1-2	REF_TYPE	NETWORK	GPS
MRC-1-3	REF_TYPE	NETWORK	CESIUM
MRC-1-4	FRAMING	AUTO	D4
MRC-1-4	REF_TYPE	NETWORK	LORAN
MRC-1-1	REF_TYPE	NETWORK	CESIUM

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Delete an Existing Configuration Default

Deleting a Configuration Default is described in Procedure BA.

Procedure BA. To Delete an Existing Configuration Default

Step	Action
Note: Users of the Security class can perform this procedure.	
1	Invoke the Configuration Defaults (main screen) dialog box: *Synchronization Map* - Click the Configuration Defaults menu item from the Defaults menu. *Launch Pad* - Choose Config Defaults... from the Defaults menu.
2	In the Available Configuration Defaults area of the Configuration Defaults (main screen) dialog box, choose the configuration default to be deleted.
3	Click the Delete Configuration button. A question box appears.
4	Click Yes to the question `Do you want to Delete Configuration? "`*`config_name`*`"` to delete the configuration.
5	Click the Exit button in the Configuration Defaults (main screen) dialog box to close it, then click Yes to the question `Do you want to exit from Configuration Defaults?`.
End of Procedure	

Audit Operation

Direct Audits help the user to identify any existing disparity between the attribute and its values on the NE, in terms of the values stored in the TimePictra database, thus helping the user to identify all the attributes carrying different values.

Once those different values have been identified, the user can use the Configuration Modify form for that NE, changing the settings on the NE in accordance with the TimePictra database or vice-versa.

To carry out this operation, TimePictra retrieves the information from the box and compares it to its stored values in the database.

Performing a configuration audit operation is described in Procedure BB.

Procedure BB. To Perform an Audit Operation

Step	Action
Note: Users of the Security and Admin class can perform this procedure.	
1	Select the Network Element on which the Direct Audit operation is to be performed. Invoke the Direct Audit Form. *Synchronization Map* - Click the Audit menu item from the Defaults menu. *Launch Pad* - Choose Audit... from the Defaults menu.

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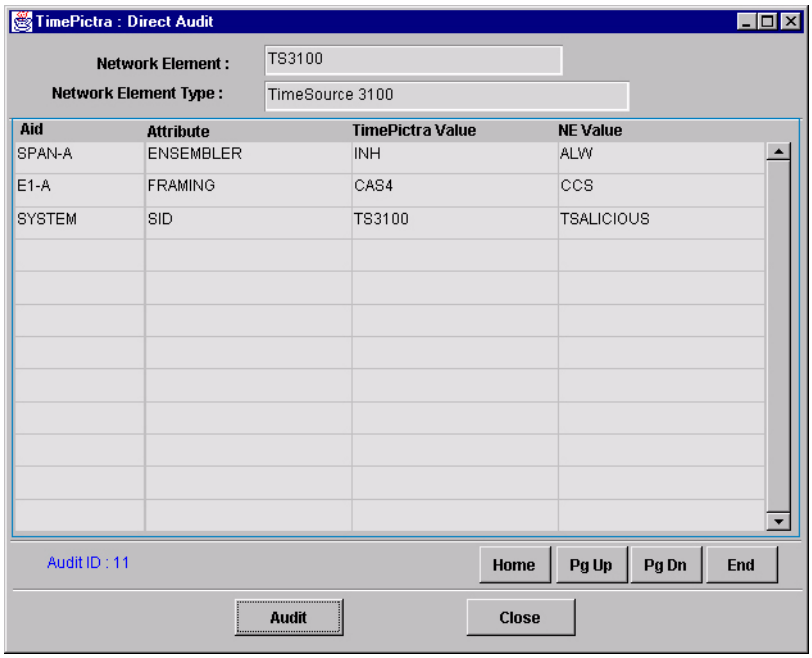
Step	Action
2	Click Audit>Direct Audit Form. The results of the Direct Audit Form are displayed in the following figure:  Any configuration differences between the NE's configuration as stored in the TimePictra database and the configuration information retrieved from the NE are displayed in the form. If the information exceeds what can be displayed in the display area of the form, use the Home, Pg Up, Pg Dn, and End buttons as well as the vertical scroll bar to view it.
3	Click the Close button in the Direct Audit Form to close it, then click Yes to the question `Do you want to exit from Direct Audit?`.

End of Procedure

Command Template

The software has the capability to maintain a User defined template containing TL1 command instruction sets. These are created to bundle TL1 commands that the user sends to the box repetitively, thus saving the effort of entering and executing them manually.

Commands are created on the basis of NE type. Once created, one or more or combinations of TL1 commands can be downloaded on a NE (of same NE type). The template can be standard or non-standard type. The template created by the user is always of a non-standard type. The user is allowed to edit or delete a non-standard type, but not standard types.

Command Template (Main Screen) Dialog Box

The Command Template dialog box is the initial box that is invoked when a user wishes to perform a command template operation. The Command Template dialog box is invoked as follows:

- *Launch Pad*: Choose Command Template... from the Defaults menu.
- *OpenView Synchronization Map*: Click on menu option TimePictra on the Main Menu. If using the drop down menu, select Defaults followed by Command Template.

Selecting the Command Template displays a similar screen to the one shown in figure 34:

Figure 39. Command Template (Main Screen) Dialog Box

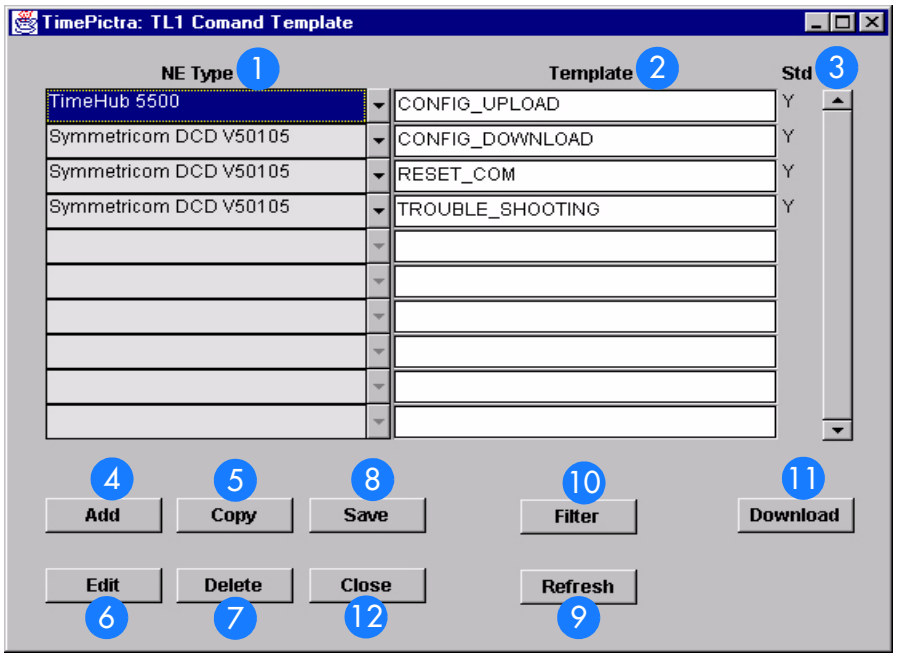


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Table AU. Command Template (Main Screen) Dialog Box Description

Item	Description
1	The NE Type column displays the NE Type of the corresponding Template. i.e. the particular Command Template can only be downloaded on an NE with same NE Type.
2	Shows the list of available Command Templates. The Template column lists the name of a given Command Template as entered when it was created.
3	This column shows whether the Template is a standard one or the one created by a user. A template created by a user is always a non-standard type.
4	This button is clicked to Add a new command template. The user is required to select the NE Type and enter a name for the template. This creates the header. The body of the Template is empty at that point. Once created, the user must use the Edit button to insert TL1 commands into the Template.
5	The Copy button is clicked to make copy from an existing Template. The user is required to select the NE Type and enter a name for the template. This creates the header. The body of the Template is still empty.
6	This button brings up another form where the user can edit, add, or delete TL1 commands in the Template.
7	This deletes the selected Template from the database. The user is only allowed to delete non-standard Templates.
8	This saves the changes made into the database.
9	The Refresh button refreshes the form, bringing up any modifications done by other users at the same time.
10	This button displays another form where the user can enter filtering criteria. This enables the system to filter the Template view.
11	This button brings up another form where the user can select a particular NE and then download all the TL1 commands in the Template to the NE.
12	The Close button exits the user from the form.

11

Adding a New Template

The procedure to add a new template is described in Procedure BC.

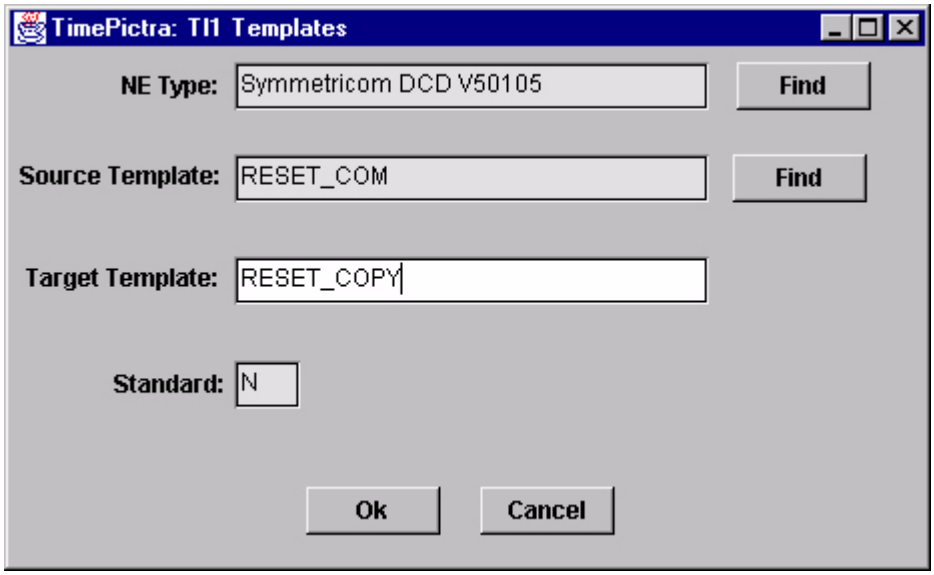
Procedure BC. Adding a New Template

Step	Action
1	Select the position on Command Template (main screen) Dialog Box, and click the button add.
2	This would create a new record just below the selected Template, a default NE Type is auto-filled, user can select the drop down button to change the selection.
3	Enter the desired name that user want to assign to the template.
	End of Procedure

Adding a Copy of an Existing Template

The procedure to add a copy of an existing template is described in procedure BD.

Procedure BD. Adding a Copy of an Existing Template

Step	Action
Note: The user is not allowed to create a Standard Template.	
1	Click on the Copy button to display the following window. 
2	Click the NE Type Find button first and select the NE Type to specify the NE Type of template which is to be copied.
3	The selected NE Type is displayed in the top field, thus filtering the list of Source Template that would be available.

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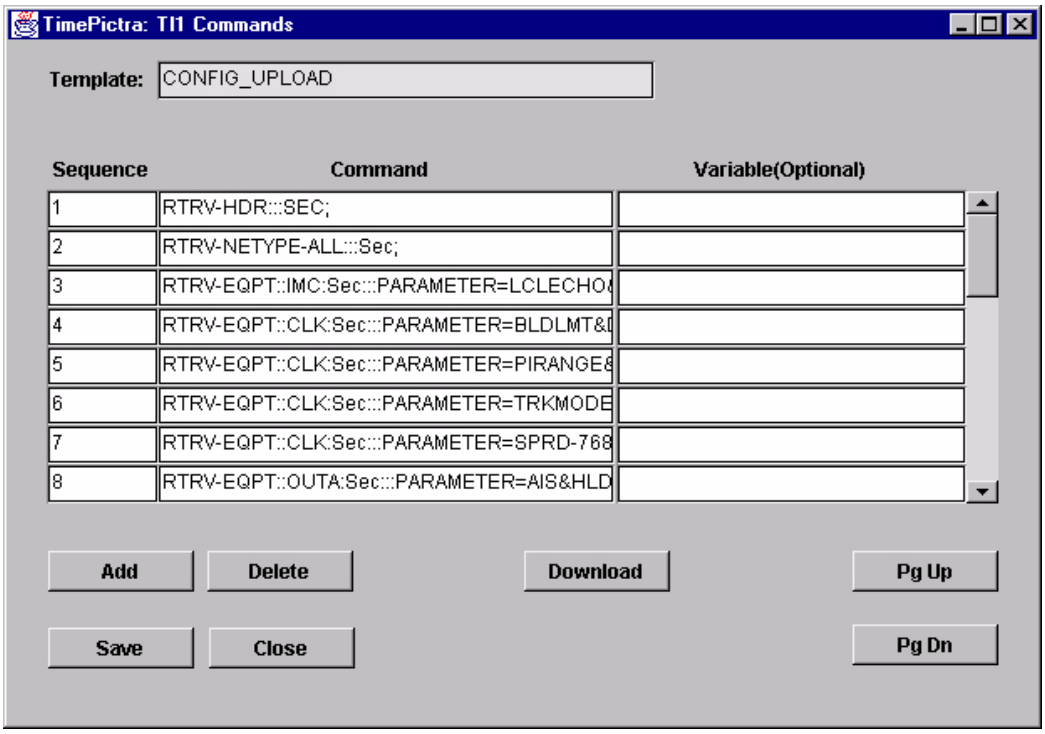
Procedure BD. Adding a Copy of an Existing Template (cont'd)

Step	Action
Note: The user is not allowed to create a Standard Template.	
4	Click the Source Template Find button and a list of templates available will be displayed. The List contains templates with an NE Type the same as the type shown in the previous NE Type field. Select a template name from the list. This becomes the source for the target template.
5	Enter the "new" name of the template in the Target Template field.
6	The Standard field is a non-editable field and shows the kind of template that would be created. It is always N for a user creation; meaning that a non-standard template is being created.
7	Click OK to validate the selection made on the screen and return to the Command Template Main Screen.
8	Click Cancel to discard the selection made by the user and return back to the Command Template Main Screen.
End of Procedure	

Editing a TL1 Command in the Template

The procedure to edit TL1 Command in the template is described in procedure BE.

Procedure BE. To edit TL1 Command in Template

Step	Action
1	Click the Edit button on the Command Template (main form) Dialog box to display the following form 
2	Sequence - The Sequence column indicates the sequence number of the commands in the template.
3	Command - The Command column lists TL1 commands in the template. The list contains the exact TL1 command that could be downloaded on a NE.
4	Variable (optional) field - this allows free input of variables. There are three variable x, y & n, which can be used in the Commands column, that would be interpreted by the TimePictra when downloading on NE. They can point to range of value using "-" in between (e.g. 1-5), or specific value separated by commas (e.g. 1,2,4). These variables can only be assigned integer values. During the Download process the TL1 Command having these variables would be interpreted separately. These variables would be substituted in the command to generate multiple TL1 commands. Example: ENT-EQPT::TO-x:CTAG; x=1-3 would actually be interpreted as three command: - 1). ENT-EQPT::TO-1:CTAG; 2). ENT-EQPT::TO-2:CTAG; 3). ENT-EQPT::TO-3:CTAG;
5	Add - Select the location where additional TL1 command needs to be inserted and click the Add button. The Sequence number of subsequent commands would be incremented by one, thus inserting a blank command at the selected location. The user can now enter a new TL1 command.
6	Delete - Select the command and click Delete to remove the TL1 command from the Template.

11

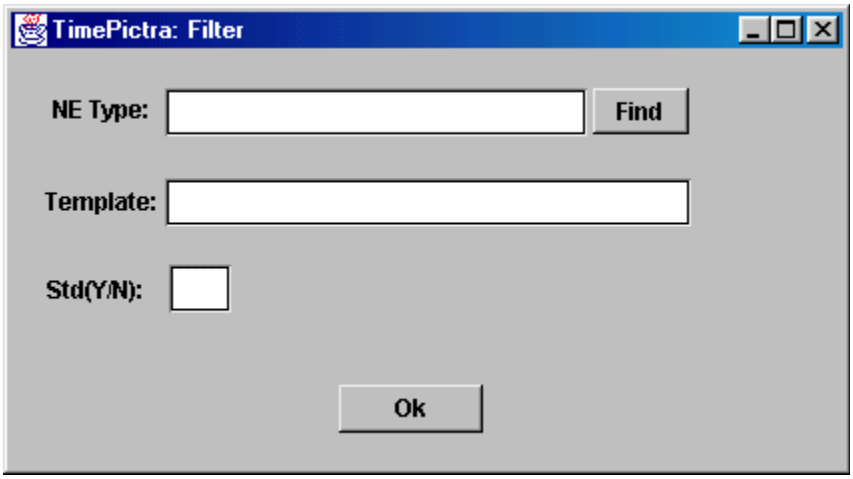
Procedure BE. To edit TL1 Command in Template

Step	Action
7	Save - User can make changes to existing entries in Column Command & Variable (Optional). Once all the changes are made to the template, click Save to make them permanent.
8	Pg Up - To scroll up by one page among the TL1 commands in the Template.
9	Pg Dn - To scroll down by one page among the TL1 commands in the Template.
10	Download - This would display another form where the user selects the Network Element on which the command template would be subsequently downloaded (name of the Procedure to Download Template on NE).
11	Close - This would close the form and display the Command Template Main Form.
	End of Procedure

Filtering the View on the Command Template (Main Form)

The procedure to Filter the View on the Command Template (Main Form) is described in procedure BF.

Procedure BF. To Filter the View on the Command Template (Main Form)

Step	Action
1	The user can set the Filter criteria to show the relevant Template under Template list on the Command Template (main form) Dialog box. Click Filter button to display the following form 
2	Find - Clicking this would display another form where a specific NE Type can be selected. Once selected only the template for this NE Type would be shown.

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Procedure BF. To Filter the View on the Command Template (Main Form)

Step	Action
3	Template - Enter any selection criteria and press OK, Command template main form would then only display the template which meets the set criteria.
4	Std(Y/N) - This would help filter among the standard and non-standard Template.

End of Procedure

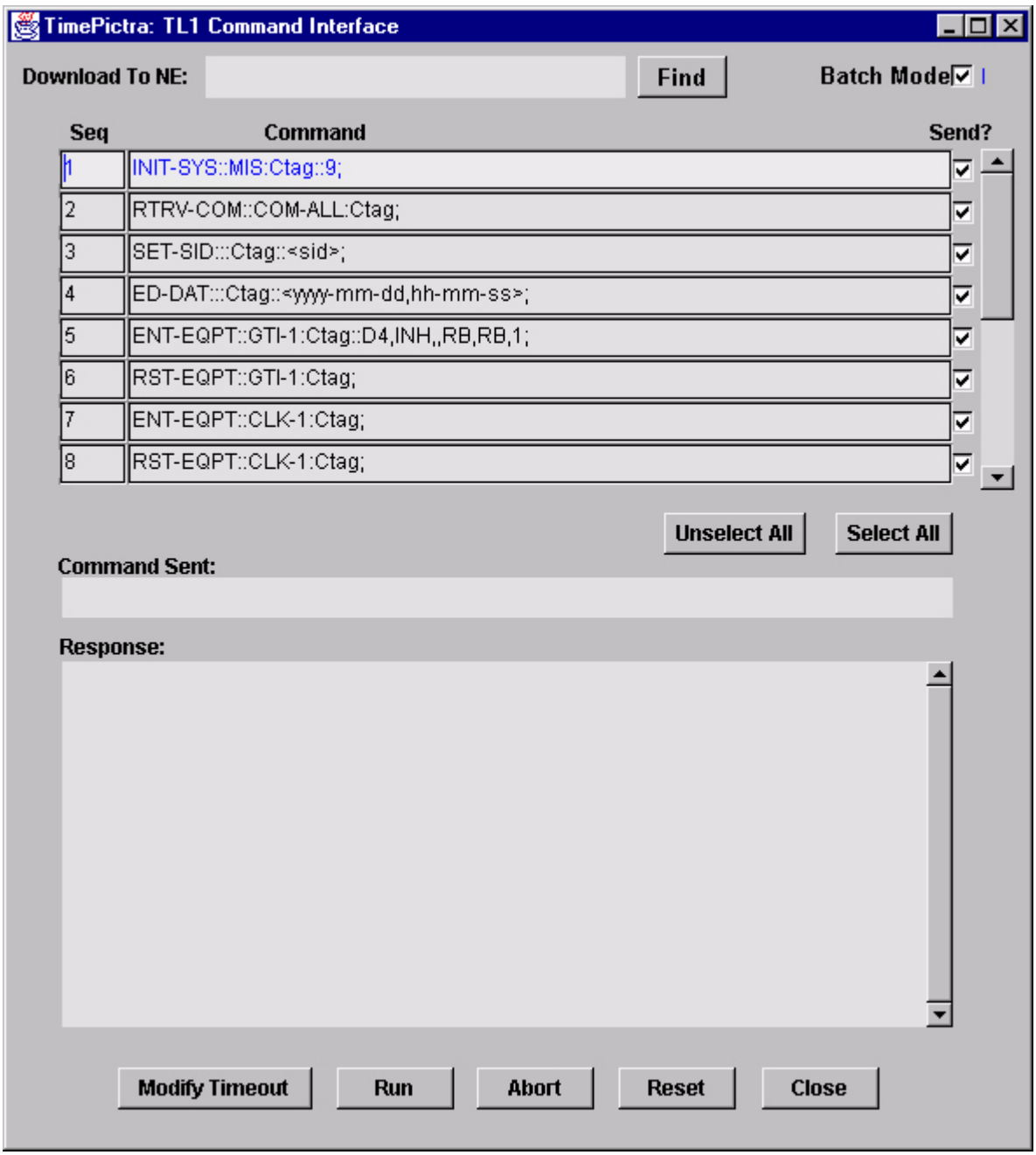
Downloading the Template on a Network Element

This is to download all or selected TL1 command available in the Template on a NE. User is required to select the NE. Commands from the Template would be downloaded on this NE.

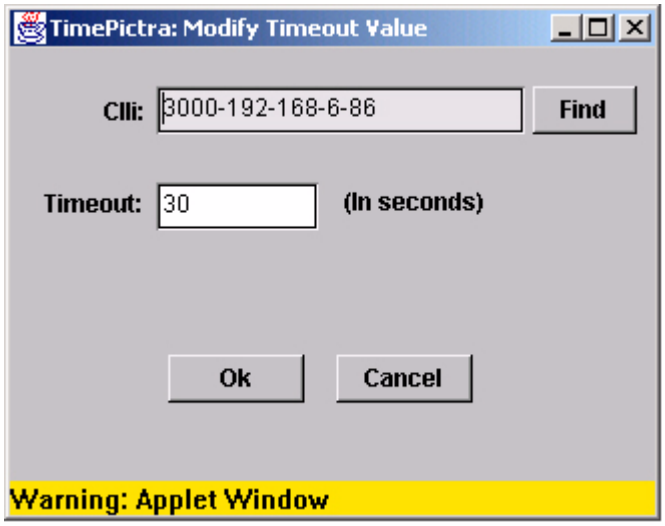
The procedure to Filter the View on the Command Template (Main Form) is described in procedure BG.

Procedure BG. Downloading the Template on a NE

Step	Action
1	Select a Template on the main form and click Download; this button is also accessible on the Edit form. This would display the following form.
2	Find - Clicking on Find displays another form with the list of NE's that matches the NE Type of template. Select the NE from this list from which a download is required of one or more commands from the command template.



Procedure BG. Downloading the Template on a NE

Step	Action
3	Run - This would run the selected TL1 commands on the NE listed in the "Download To NE:" field. The system starts to read through the TL1 commands in the Template and would run one by one, starting from the top.
4	Abort - Aborts the download process in operation.
5	Reset - Resets the screen to its' default settings.
6	Close - Close the form and displays the Command Template Main Screen.
7	Unselect All - Deselects the checked status for Send? for all the TL1 commands in the Template. All the deselected commands are excluded by the Run operation.
8	Select All - This would check the status for Send? column for all the commands in the Template. All the command with checked status for column Send? would be downloaded on the selected NE during the Run operation.
9	Modify Timeout - This would change the time interval for the timeout. Clicking on this displays the following form: 

End of Procedure

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Auto Action

The procedures in this chapter explain how to associate internal and external processes such as scripts, e-mail, and command templates with internal events and conditions within the TimePictra database.

Chapter 12

Overview

The Auto Action feature provides a very dynamic way of associating internal and external processes such as scripts, e-mail, and command templates with internal events and conditions within the TimePictra database.

Auto Action consists of two major forms located in the Auto Action submenu; Actions and Associations. The Actions form is used to associate an action or command template with what condition or event in the TimePictra database that will trigger it.

The Associations form is used to associate an action with an external UNIX shell script or utility. Both forms will be described in detail below.

In This Chapter

The information in this chapter can be referenced when performing Auto Action operations. The following forms are explained in this section:

Actions

This section explains how to use the software's ability to run external UNIX shell commands in response to conditions within the database.

Association

This section explains how to define new actions or templates, and associate them with the conditions under which they'll be executed

Action Details

The ability to run external UNIX shell commands in response to conditions within the database is a very powerful feature of the TimePictra software. The following form is used to define what command will be executed, and assign a name to that command.

Figure 40Action Details Dialog Box

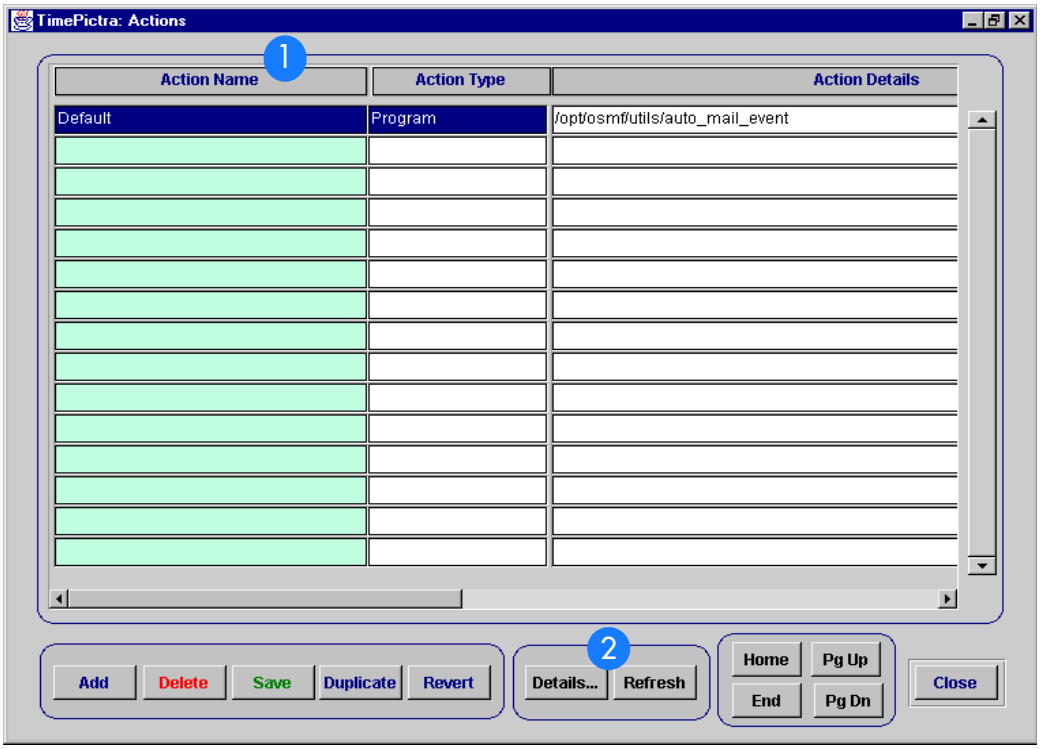

Table AV. Auto Action Dialog Box Description

Item	Description
1	Select an Action Name
2	Click the Details button.

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Table AV. Auto Action Dialog Box Description (cont'd)

Item	Description
3	A window with all of the action's configurable information is displayed. Each field will be described in detail below:

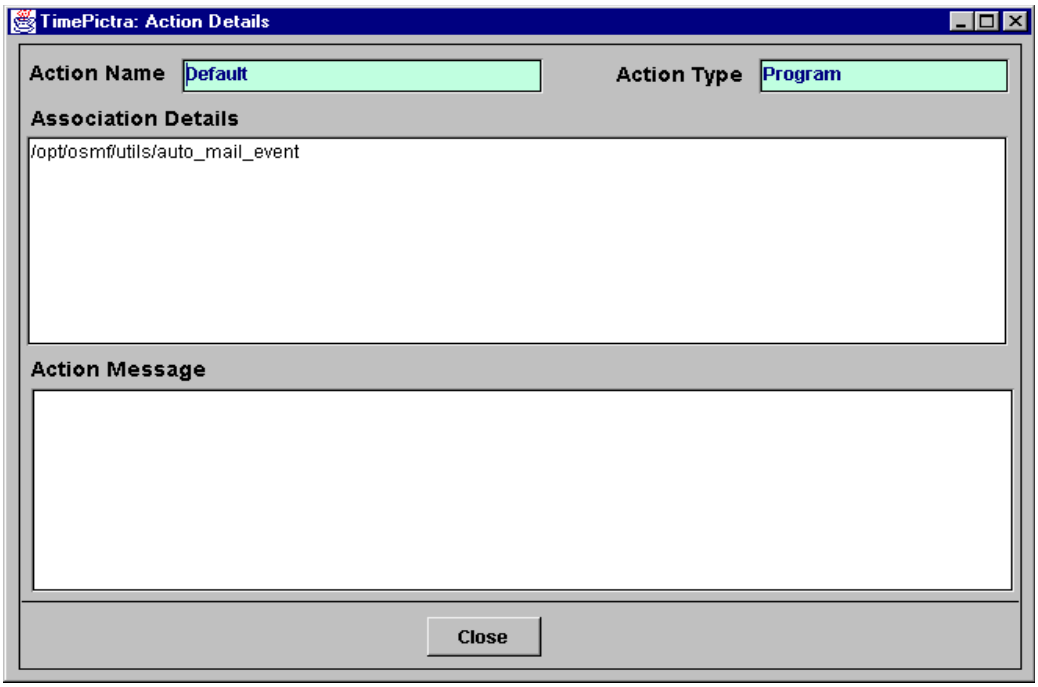


Table AV. Auto Action Dialog Box Description (cont'd)

Item	Description

	Action Name: This field holds a user-defined name for an action. The name can be up to thirty characters, and will be associated with the shell command in the Action Details field.
	
	Action Type: Currently, the only Action Type definable in this form is a "Program," or external shell command.
	
	Action Details: This is the UNIX shell command. In the example, a simple script at /opt/osmf/utils/auto_mail_event named Default is called. it contains:
	
	`PRODUCT_DIR=/opt/osmf`
	`PRODUCT_NAME="TimePictra"`
	`DATA_FILE="TimePictra_Event.dat"`
	`/usr/bin/mailx -s"Auto Action from TimePictra" otroot</tmp/$DATA_FILE`
	
	A file at /tmp/TimePictra_Event.dat is generated by Auto Action each time the conditions in the Associations form are met, and contains information in the following sequence:
	
	Association Message - Set in 'Association'.
	
	Action Message - Set in 'Action'.
	
	CLLI - The CLLI of the responsible NE.
	
	AID - The AID of the responsible NE.
	
	Condition Type - The type of condition that generated the event.
	
	Severity - The severity of the event.
	
	Event Message - The entire event received from the NE.
	
	By default this file is stored at /tmp/TimePictra_Event.dat, but can be changed by starting (or restarting if necessary) TimePictra daemons with the SV_TMPDIR environment variable set to the desired path. After the shell command is finished executing, TimePictra_Event.dat is truncated.
	
	Action Message: This is an optional bit of text that will be included in the TimePictra_Event.dat file every time this action is fired.

Action Association

This section explains how to define new actions or templates, and associate them with the conditions under which they will be executed.

Figure 41 Action Association Dialog Box

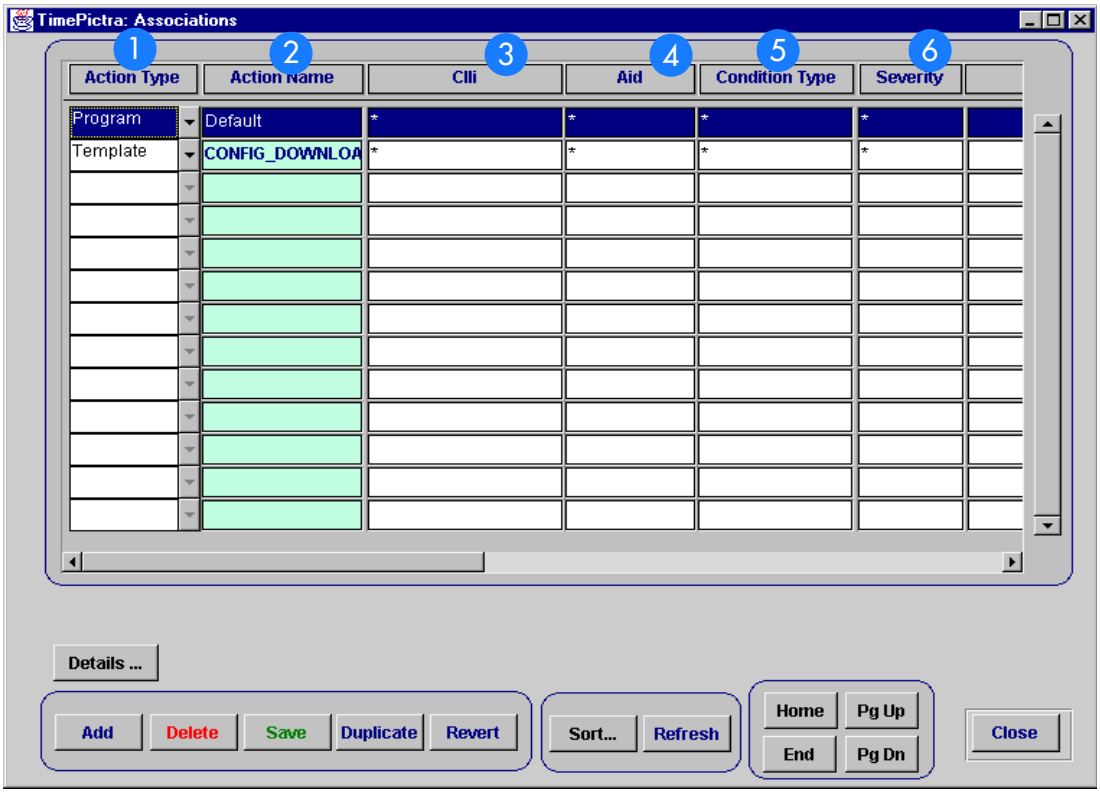


Table AW. Auto Association Dialog Box Description

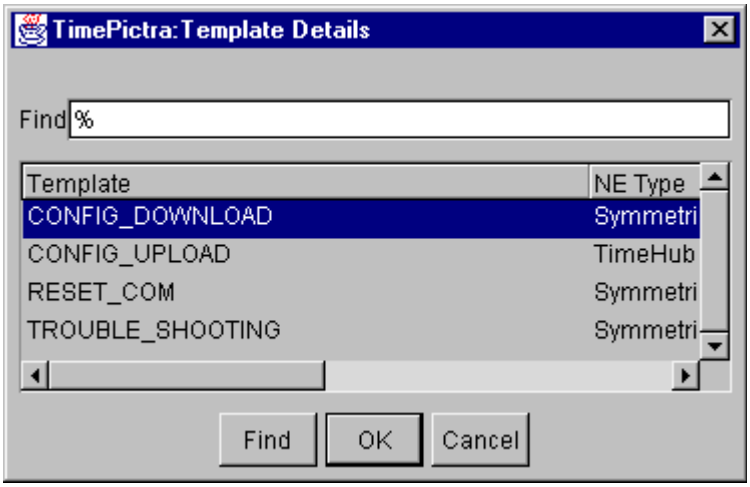
Item	Description
1	The Action Type field will contain the type of action to be executed. Currently there are two types of actions; Command Templates and external programs. A command template is a predefined bundle of commands that can be sent to one or more specific network element(s), and an external program is anything that can be run from the UNIX shell. This allows for an incredible range of applications, but also allows the user to enter potentially harmful commands. Because of this power, use of Auto Action is restricted to users of the Security class only. Also, it's recommended that only someone competent with the HP-UX operating system and Command Templates configure these types of actions.
2	This field behaves differently depending on which value is in the Action Type field. If the Action Type field is set to Template, then double-clicking on the Action Name field will bring up all available Command Templates. This is shown below.  After selecting a template and clicking on OK, the name of that template will populate the Action Name field and that template will be executed when all of the user-defined conditions are met

Table AW. Auto Association Dialog Box Description (cont'd)

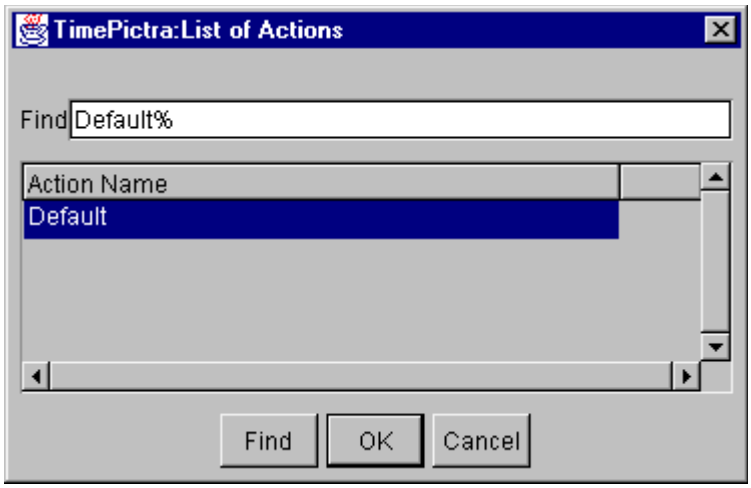
Item	Description
	If the Action Type field is set to Program, then double-clicking on the Action Name field will bring up a list of the actions defined in the Action Details form. This is shown below:  After selecting an action and clicking OK, the name of the action will populate the Action Name field and that action will be executed when all of the user-defined conditions in that row are met.

Table AW. Auto Association Dialog Box Description (cont'd)

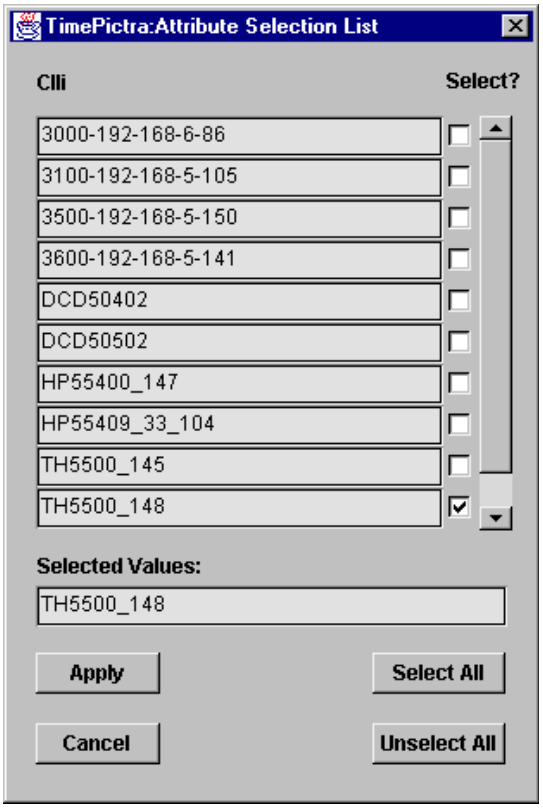
Item	Description
3	The CLLI of the network element. The action will be fired if an event comes from a network element with this CLLI. The wildcard '*' is allowed, to specify all CLLIs. Double-clicking on this field will bring up a list of available CLLIs to choose from. These are shown below:  Multiple CLLIs can be specified by checking as many boxes as desired. However, the total number of characters in the CLLI of all selected NE's cannot exceed 500.

Table AW. Auto Association Dialog Box Description (cont'd)

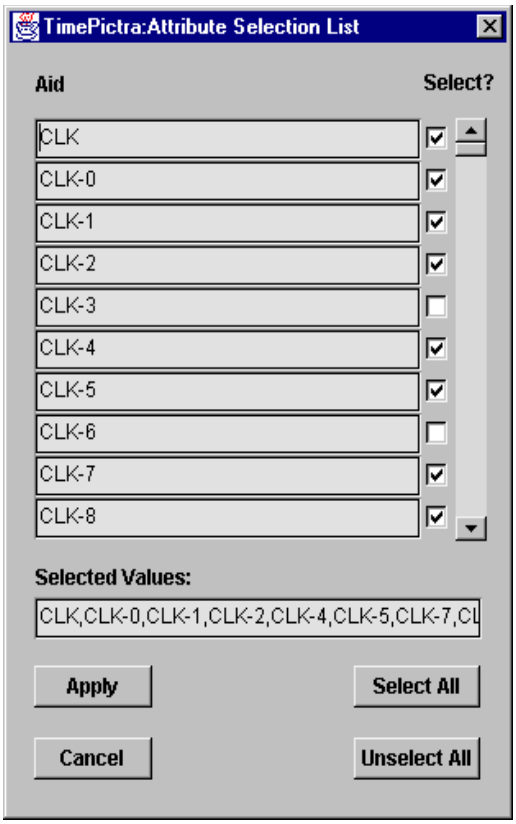
Item	Description
4	The AID to look for in an event. Double-clicking on the AID field will bring up a list of AIDs to choose from This list is shown below:  All desired AIDs can be selected from the list, but the 500 character limitation in the other selection lists also applies here.

Table AW. Auto Association Dialog Box Description (cont'd)

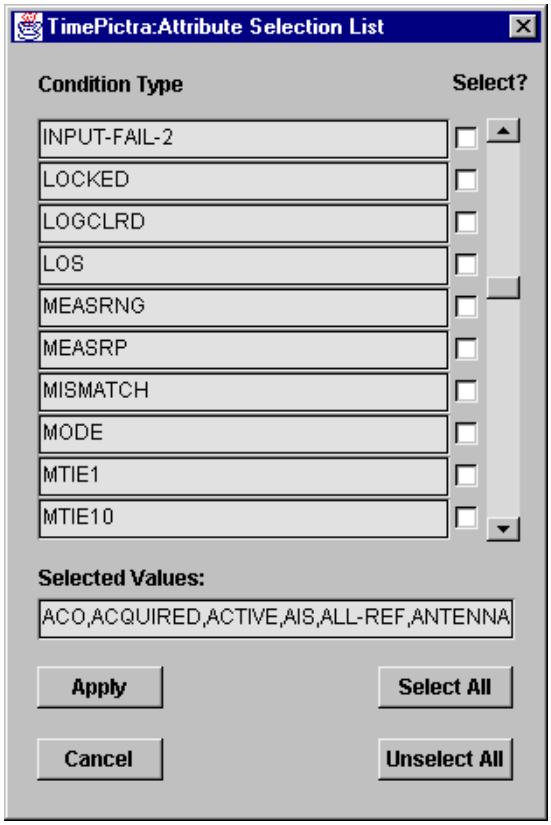
Item	Description
5	This field allows the user to specify the type of condition to look for in an event and fire actions for things such as equipment failing, clock cards going into holdover, fuses blowing, or performance thresholds being crossed. Double-clicking on this field for the chosen action will display the following menu:  All desired condition types can be selected from the list, but the 500 character limitation in the other selection lists also applies here.

Table AW. Auto Association Dialog Box Description (cont'd)

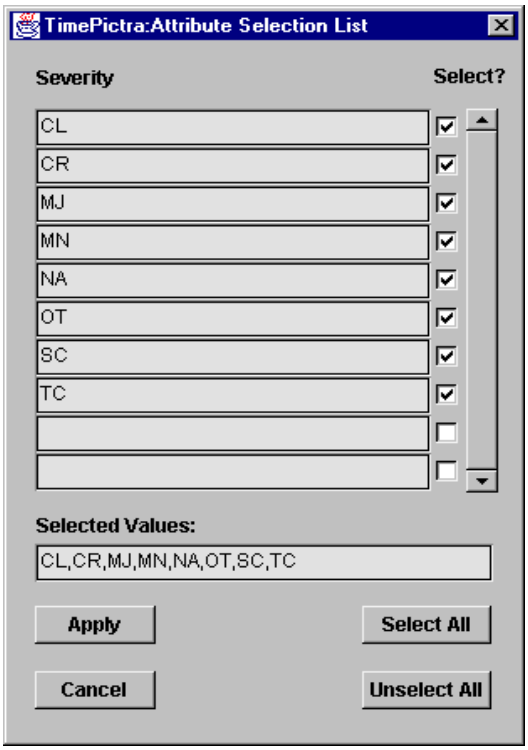
Item	Description
6	This field allows the user to look for a specific severity in an event. All known severities for all supported network elements are represented. Double-clicking on this field will bring up the following menu:  All desired severities can be selected from the list.

Table AW. Auto Association Dialog Box Description (cont'd)

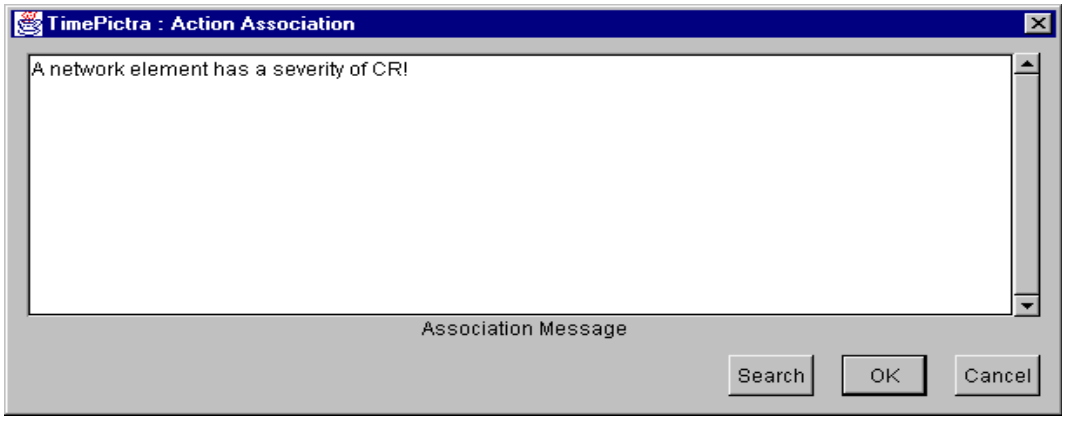
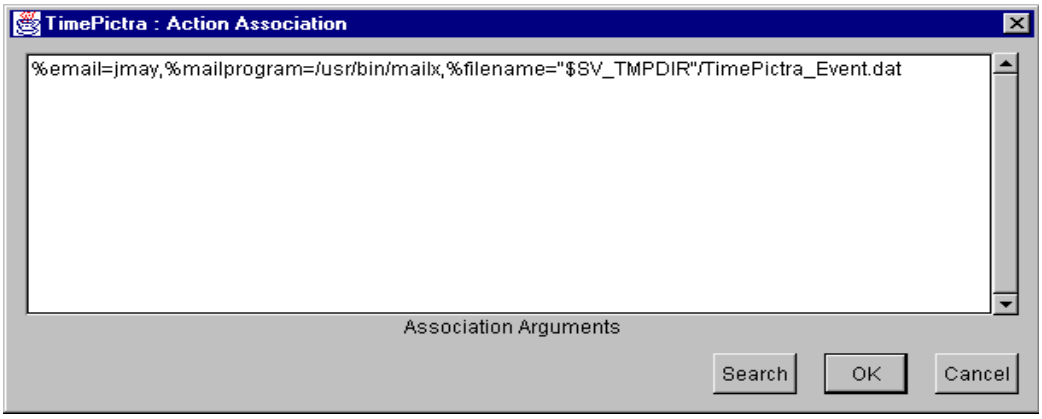
Item	Description
	Association Message (*not shown*): Double clicking on this field contains any text the user wishes to see in the TimePictra_Event.dat file when the above user-defined conditions are met. This allows the user to define several different conditions to fire the same action, and associate a message with the conditions that fire the action rather than the action itself. Clicking once on the Association Message field will bring up the following text entry box: 
	Association Arguments (*not shown*): Double clicking on this field enables the user to define any variables they want to be passed to the action when the conditions are met. These variables can be used in the Action Details field of the Action Details form, in the shell command. Clicking once on the Association Arguments field will bring up the following text entry box:  It can be seen that, variable names begin with a % sign. Multiple variables can be declared, but must be separated by a comma. Spaces between variable declarations and commas aren't allowed. In the above example, the UNIX shell variable $SV_TMPDIR is referenced to. UNIX shell variables must be enclosed in double quotes. This is useful if, for example, the user wanted to define an action to give the shell command: %mailprogram %email %filename

Table AW. Auto Association Dialog Box Description (cont'd)

Item	Description
	Event Type (*not shown*): Currently, the event type field will only contain the value NE_EVENT.

Chapter 13

Command Pass Through

The procedures in this chapter explain how to use the Pass-Through Interface to pass TL1 commands directly to NEs for execution.

13 Overview

The TimePictra application contains an interface that allows Security-class and Administrator-class users to send single TL/1 commands to selected NEs and receive and view responses. The interface - the *Pass-Through Interface* dialog box - is used to send TL/1 commands directly to a selected NE. The dialog box allows the user to type in (compose) a command, select a command from a supplied listing of commands, or choose a command from a history list of previously-sent commands. The user can then make modifications to the command if necessary, execute the command, and view the response to the command.

Command Pass-Through

Command pass-through operations are performed within the Pass-Through Interface dialog box. Figure 42 and Table AX explain the Pass-Through Interface dialog box.

Figure 42. Pass-Through Interface Dialog Box

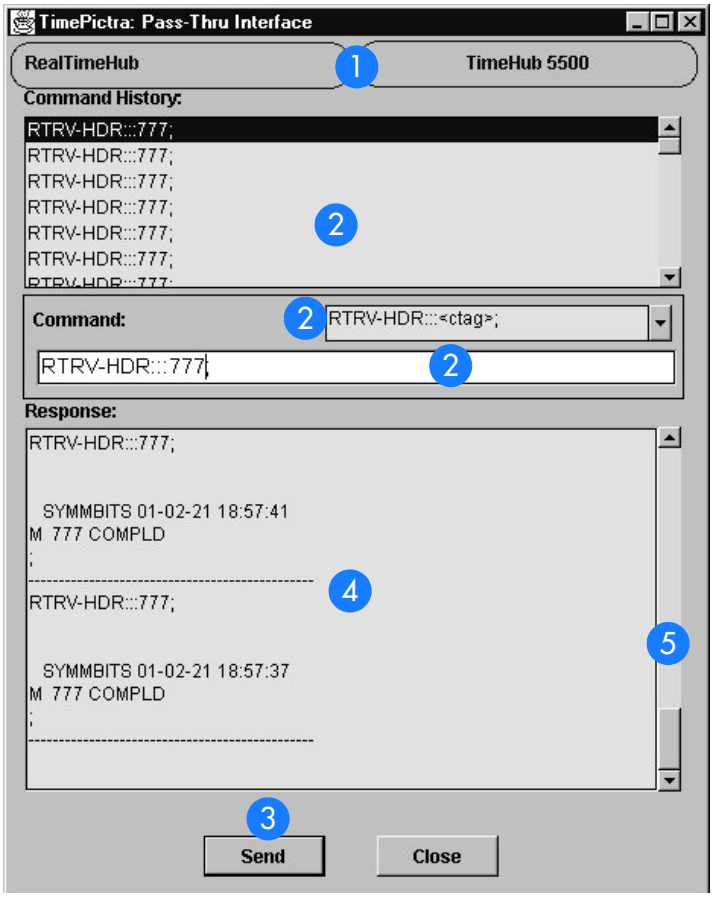


Table AX. Pass-Through Interface Dialog Box Description

Item	Description
1	The CLLI code of the selected NE is shown in the leftmost of these fields. The field cannot be edited; it reflects the CLLI code of the NE that was selected in the synchronization network map or Launch Pad when the dialog box was invoked. The rightmost of these fields shows the NE type for the NE. This field cannot be edited.

Table AX. Pass-Through Interface Dialog Box Description (cont'd)

Item	Description
2	A TL/1 command can be entered for pass-through in one of three ways: • *A command can be chosen from the "Command History" list.* The command history list contains the most recent 50 commands that were sent to the selected NE using the dialog box. A command selected from the history list will appear in the "Command" entry field, where it can be edited if necessary before being sent. • *A command format and syntax can be selected from the "Command" drop-down list.* This drop-down list contains commands that are supported for the indicated TL/1 version. A command selected from the "Command" drop-down list will appear in the "Command" entry field, where it can be edited as necessary before being sent. • *The command can be typed directly into the "Command" entry field.* Note that in any case, the dialog box does not check that the command is syntactically correct before it is sent. Furthermore, even if a command is sent that is not syntactically correct, it will subsequently appear in the history list.
3	Once the TL/1 command has been entered for pass-through, clicking the Send button will send it to the NE.
4	The "Response" text box displays the response to the command in the exact format as returned by the NE.
5	The vertical scroll-bar, can be used to view the entire contents of the "Response" scroll-box.

Pass-through a TL/1 Command to an NE

Procedure BH explains how to pass through a TL/1 command to an NE.

Procedure BH. Passing Through a TL/1 Command to an NE

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE to which you want to send TL/1 commands.
2	Invoke the Pass-through Interface dialog box: *Synchronization Map* - Click the Pass Thru menu item from the TimePictra menu. *Launch Pad* - Click the Pass Thru... shortcut icon, or choose Pass Thru... from the PassThru menu. *Note:* The selected NE must be in the managed state in order to invoke the Pass-through Interface dialog box.

Procedure BH. Passing Through a TL/1 Command to an NE (cont'd)

Step	Action
3	Enter the pass-through command into the "Command" entry field using one of the following methods: • If the command exists in the "Command History" list, select it in the list so that it appears in the "Command" entry field. If a command exists in the history that is similar or identical to the command you wish to send, you can select it and then edit it. • Choose the command format and syntax from the "Command" drop-down list so that it appears in the "Command" entry field. • Type the command directly into the "Command" entry field. *Note:* For command usage and syntax details for the TL/1 commands supported for pass-through, refer to the reference documentation for the NE.
4	Edit the command if necessary in the "Command" entry field.
5	Click the Send button to send the command. If the NE is able to receive and process the command, it sends a response which is displayed in the "Response" area of the dialog box. If the NE takes 30 seconds or more to send the response, a timeout message will appear. *Note:* Non-printing characters, such as carriage-return and line-feed characters, might be shown in the response text as question marks or squares.

End of Procedure

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Miscellaneous Functions

Chapter 14

The procedures in this chapter explain how to view and interpret the Activity log and create Activity Log reports, view and interpret the Transaction log, release locks that have been left in place by the system against NEs, perform a forced alarm sync operation, and identify the Web user currently logged on.

Overview

The software contains some miscellaneous functions that the user might need to access at any time while using the software. These functions are explained briefly below, and explained in detail in this chapter.

Show User

This function invokes an information box which shows the username of the user that is running the current session, as well as the group (user class) of that user.

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Activity Log

The software maintains a log, referred to as the activity log, which contains command responses passed between NEs and the software. The activity log also contains the echoes of command and response activity on the craft and maintenance ports of NEs.

The dialog box that aids in the display of the activity log is the Activity Log viewer. The Activity Log viewer displays system activity information chronologically. Functions are contained within the dialog box to search it, filter certain entries from it, and create activity log reports.

Force Unlock NE

During certain NE configuration modification and management operations, the system places a lock against the NE in the TimePictra database, blocking other user sessions from accessing the NE for modifications. If the software terminates abnormally during one of these operations, a lock might be left in place against the NE. When this situation occurs, the SEC user can use the Force Unlock NE function to release the lock that is in place against the NE.

Forced Alarm Sync

During a forced alarm synchronization operation, the software obtains a list of active alarms from a selected NE and compares the alarms with the alarms that are stored in the TimePictra database for that NE. During the comparison, any alarms that are in the TimePictra database (hence, still active in the Alarm Viewer) but are no longer active in the NE are considered to no longer be active alarms. When these alarms are detected, they are marked as “Cleared By System,” and transferred from the Alarm Viewer to the Event Log.

Note: The software contains an alarm synchronization process which periodically performs a very similar operation for all of the managed NEs. That process runs at start-up and then repeats every 12 hours, but cannot be otherwise forced to run. The Forced Alarm Sync feature allows the process to be run on a selected NE at any time.

Transaction Log

The software maintains a log, referred to as the transaction log, which is a record of the activity by each user for each Network Element. The log maintains a history of all the changes on the Network Element, shown on attribute basis, including its past and present value.

Note: Transactions are only logged when a user makes changes to the Network Element using the TimePictra GUI. Any other method used to make changes on the Network Element are not be logged. Changes made using the TimePictra Pass Thru interface are also considered to be direct (non-GUI) changes, and those transactions are not logged.

The Activity Log Viewer

An Activity Log viewer dialog box is provided to view the log of command responses passed between the selected NE and the software. This data is arranged chronologically in the log. In addition to command responses from the NE, the activity log also contains the echoes of command and response activity on the craft and maintenance ports of the NE. Figure 43 and Table AY briefly explain the Activity Log viewer dialog box.

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Figure 43. Activity Log Dialog Box

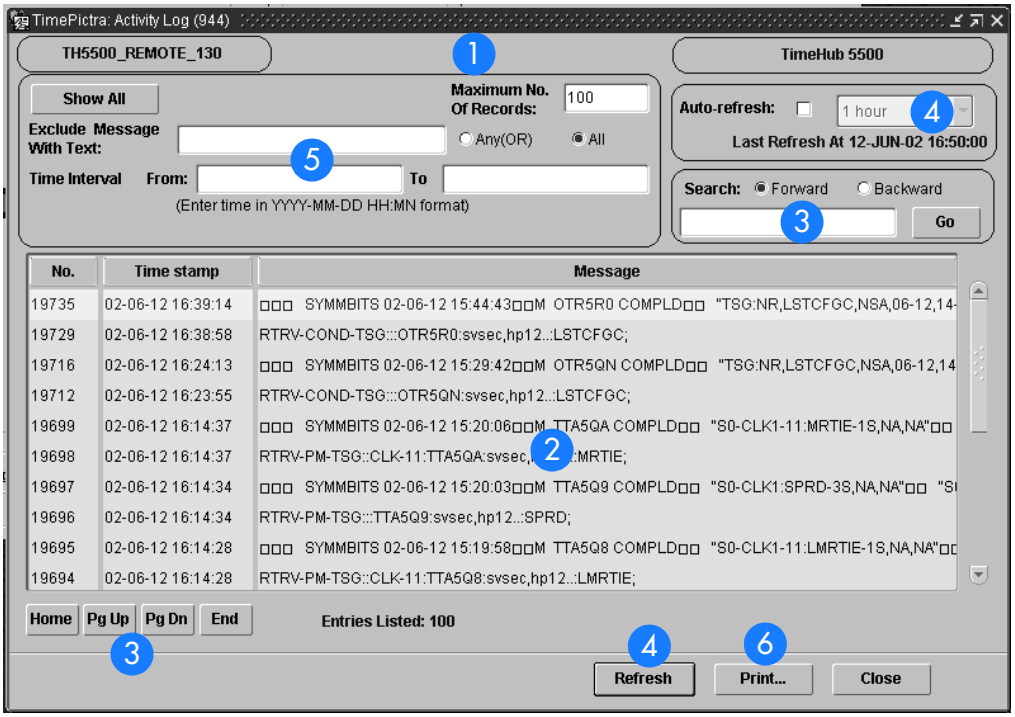

Table AY. Activity Log Dialog Box Description

Item	Description
1	The CLLI code shown in the upper-left field indicates the NE to which the activity log data applies. The NE selected in the synchronization network map or Launch Pad prior to invoking the dialog box becomes the NE to which the activity log applies. The upper-right field indicates the NE type for the NE.

Table AY. Activity Log Dialog Box Description (cont'd)

Item	Description
2	The activity log contains a chronological record of all responses sent from the NE, and echoes of command activity on the NE's craft and maintenance ports. The scroll-box contains a listing of the activity log data for the selected NE. The "No." column contains the sequence number that is assigned to the message by the software as it is logged into the activity log table in the database. Likewise, the "Time Stamp" column contains the date and time at which the message was logged into the activity log table in the database. The "Message" column contains the commands sent to the NE and their responses. *Note:* The activity log stores the most recent 15 days of activity for a given NE. Messages are often lengthy, in which case if you double-click on the message, an Expanded Message dialog box appears containing the entire text of the message. *Note:* Non-printing characters, such as carriage-return and line-feed characters, might be shown in the message text as question marks or squares.
3	The navigation buttons (Home, Pg Up, Pg Dn, and End) and scroll bar can be used to navigate through the list of messages, and the search function (that is, the Go button and associated entry field and "Search" radio buttons) can be used to search the list of messages for a specified text string. Searching can occur in either the Forward or Backward direction. The search entry field is not case sensitive.
4	The auto-refresh interval determines the frequency at which the Activity-Log viewer is automatically updated. Auto-refresh is active when the "Auto-refresh" check-box is selected. One of several refresh intervals - ranging from 1 minute to 1 hour - can be chosen from the adjacent drop-down list. The Activity-Log viewer can also be updated at any time by clicking the Refresh button.
5	A variety of filtering criteria can be applied to the list of activity log messages. The number entered into the "Maximum No. of Records" field limits the number of messages displayed in the dialog box. If the "Maximum No. of Records" field is blank, the entire log will be considered for display. Messages that include the text entered into the "Exclude Message With Text" field will be filtered from the message list. Space-separated text is considered as one string if the "All" radio button is selected, or each word is considered separately if the "Any (OR)" radio button is selected. Activity log messages can be filtered so that only those logged within a specified time frame are displayed. The dates and times entered into the "Time Interval" fields reflect the beginning and end of the time frame. By default, these fields are blank, in which case they have no effect on the message list. (The format is *YYYY-MM-DD HH:MN* where *YYYY* is the year, *MM* is the numeric representation of the month, *DD* is the day, *HH* is the hour in 24-hour format, and *MN* is the minutes). *Note:* If the Show All button is clicked, the filtering fields are set to their default values, which effectively cancels filtering. The setting of the "Show" radio buttons, however, is not affected.
6	Clicking the Print... button calls up a previewer from which you can view a formatted activity log report, and print the report to a printer. Refer to the task *Create an Activity Log Report* for more information.

View the Activity Log

Procedure BI explains how to view the activity log.

Procedure BI. Viewing the Activity Log

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE for which you want to view the activity log.
2	Invoke the Activity Log viewer dialog box: *Synchronization Map* - Click the Activity Log menu item from the Miscellaneous menu. The Miscellaneous menu is part of the TimePictra menu. *Launch Pad* - Click the Activity Log... shortcut icon, or choose Activity Log... from the Misc menu. The Activity Log viewer dialog box shows the chronological log of command/responses and events passed between the software and the selected NE.
3	If the number of entries exceeds the number of entries that can be displayed in the Activity Log viewer, use the Home, Pg Up (page-up), Pg Dn (page-down), and End buttons as well as the vertical scroll bar to view them. Table AZ explains the information that is provided for each entry in the Activity Log.
End of Procedure	

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Table AZ explains the information provided for each entry in the Activity Log.

Table AZ. Activity Log Information

Field	Description
No.	The sequence number that is assigned to the message by the software as it is logged into the activity log table in the database.
Time Stamp	The date and time at which the message was logged into the activity log table in the database. When the activity log is filtered by Time Interval (refer to the related task below), it is filtered on the time/date in this field, not on the time stamp of the entry that appears in the "Message" column.
Message	The actual message data, which can contain its own time stamp (for example, the time/date when the NE issued an event). If the message is lengthy, which is often the case, you can double-click on it, and the entire text of the message will appear in a dialog box entitled "Expanded Message."

Search the Activity Log

Procedure BJ explains how to search the activity log.

Procedure BJ. Searching the Activity Log

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Select the appropriate search direction radio button ("Forward" or "Backward").
2	Select the point from which you want to begin the search by clicking on the entry in the activity log scroll box.
3	Enter the desired search string into the entry field that is adjacent to the Go button. The search algorithm will find entries in the "Message" field of the activity log which contain the search string. The search string algorithm is not case sensitive.
4	Click the Go button to begin the search. Starting at the point selected in step 2, the search algorithm will search the list of activity log entries in the selected search direction until a character-for-character match is found. The message containing the match will be highlighted in the scroll box. Click the Go button again to continue the search for the next occurrence. When the algorithm reaches the beginning or end of the displayed entries (as is appropriate given the chosen search direction), a question box appears asking if you want to search from the other end of the log.
5	Click Yes to resume searching from the other end of the log, or No to end the search. *Notes:* 1. If no records match, a warning box is displayed containing the message "`No records found that contained the search string` *`string`*." Click OK to dismiss this warning box. 2. The search algorithm searches the list of displayed activity log entries, not the entire activity log. Entries that have been excluded from the display by filtering will not be searched. 3. The search algorithm searches on the "Message" field only. The "No." and "Time Stamp" fields are not searched.
End of Procedure	

Filter Entries from the Activity Log

Procedure BK explains how to filter entries from the activity log.

Procedure BK. Filtering Entries from the Activity Log

Step	Action
Note: Users of the User, Administrator, and Security classes can perform this procedure.	
1	Choose the desired filtering criteria. Filtering criteria are explained in Table BA.

Procedure BK. Filtering Entries from the Activity Log (cont'd)

Step	Action
2	Choose the appropriate action: • *To apply the filtering criteria*, click the Refresh button. • *To cancel and reset the currently-selected filtering*, click the Show All button. Note that clicking this button does not affect the setting of the "Show" radio buttons.

End of Procedure

Table BA explains the Activity Log filtering criteria.

Table BA. Activity Log Filtering Criteria

Filtering Criteria	Description
Maximum No. of Records	The number entered into this field limits the number of messages displayed in the dialog box. If this field is blank, the entire log is considered for display.
Exclude Message With Text	Messages containing the text entered into this field are filtered from the message list. Space-separated text is considered as one string if the "All" radio button is selected, or each word is considered separately if the "Any (OR)" radio button is selected. If this field is blank, it will have no effect on the message list.
Time Interval	The dates and times entered into these fields reflect the beginning and end of the time frame to be included in the display (all other entries will be excluded). By default, these fields are blank, in which case they have no effect on the message list. (The format is *YYYY-MM-DD HH:MN* where *YYYY* is the year, *MM* is the numeric representation of the month, *DD* is the day, *HH* is the hour in 24-hour format, and *MN* is the minutes).

Create an Activity Log Report

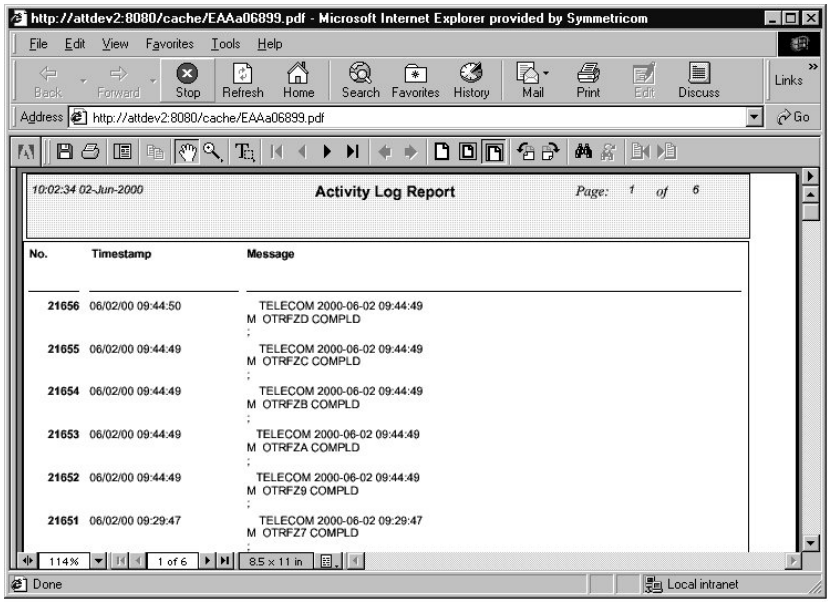
The information displayed in the Activity Log viewer can be viewed as a formatted report, and printed if desired.

Procedure BL explains how to create an activity log report.

Procedure BL. Creating an Activity Log Report

Step	Action

Note: Users of the User, Administrator, and Security classes can perform this procedure.

Step	Action
1	Ensure that the filtering criteria are set appropriately so that the desired activity log messages are displayed in the Activity Log viewer. Only those messages shown in the Activity Log viewer will be included in the Activity Log Report. Refer to the procedure *Filter Entries from the Activity Log* in this chapter.
2	Click the Print... button in the Activity Log viewer dialog box to call up the previewer. The report previewer is a separate invocation of the Web browser containing the Acrobat® Reader either as a plug-in to the browser, or as a helper application (separate from the browser). The formatted Activity Log Report is in PDF (portable document format) and appears similar to the following figure:  *Note:* By default, the software displays the Activity Log report, which is generated in PDF format, using the Acrobat® Reader (version 5.0 and above) as a plug-in or helper to the browser. If the Acrobat Reader is not already installed on your client, you can obtain it from Adobe Systems Incorporated.
3	Use the controls of the Acrobat Reader to navigate, save, or print the Activity Log Report.

End of Procedure

Network Element Locks

During NE operations involving the Modify Configuration and Manage dialog boxes, the system places a lock against the NE in the TimePictra database, which blocks other user sessions from accessing the NE for modifications. During those operations, if other user sessions attempt to access the NE for modifications, a message box will appear variously stating that the NE is under operation by another user, or that it is locked by another user.

If such a message is displayed to the user session, you will not be able to access the NE until the lock is released by the user session that initiated it.

If the software terminates abnormally during one of these operations, locks might be left in place against NEs. When this situation occurs, the security-class user with username SEC can select the NE in the target list area of the Launch Pad, then choose Force Unlock NE from the Misc menu. In the Openview Synchronization Map, click TimePictra, then Miscellaneous, and then Force Unlock NE.

Identify the User Currently Logged On

To identify the user logged on in the current Web user session, click the Show User... shortcut icon in the Launch Pad, or choose Show User... from the Misc menu. This action invokes an information box which shows the username of the user that is running the current Web user session, as well as the security group for that user. Figure 44 shows an example of the information box.

Figure 44. Show User Information Box

Clicking the OK button in the information box dismisses it.

Perform a Forced Alarm Sync Operation on an NE

Procedure BM explains how to initiate a forced alarm synchronization operation on a selected NE.

Procedure BM. Performing a Forced Alarm Sync Operation on an NE

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE for which you want to initiate a forced alarm synchronization operation.
2	Choose the appropriate action: *Synchronization Map* - Click TimePictra>Miscellaneous>Forced Alarm Sync. *Launch Pad* - Choose Forced Alarm Sync from the Misc menu. A question box containing the message "Do you want to do a Alarm Sync on *ne_name*?" appears.
3	Click Yes to initiate the forced alarm synchronization operation, or click No to cancel the operation.
4	Click OK in the message box that follows to dismiss it.
End of Procedure	

Transaction Log

TimePictra maintains a log, referred to as the transaction log, which is a record of the activity by each user for each Network Element. The log maintains a history of all the changes on the Network Element, shown on attribute basis, including its past and present value.

Note: Transactions are only logged when a user makes changes to the Network Element using the TimePictra GUI. Any other method used to make changes on the Network Element are not be logged. Changes made using the TimePictra Pass Thru interface are also considered to be direct (non-GUI) changes, and those transactions are not logged.

Figure 45 and Table BB briefly explain the Transaction Log dialog box.

Figure 45. Transaction Log Dialog Box

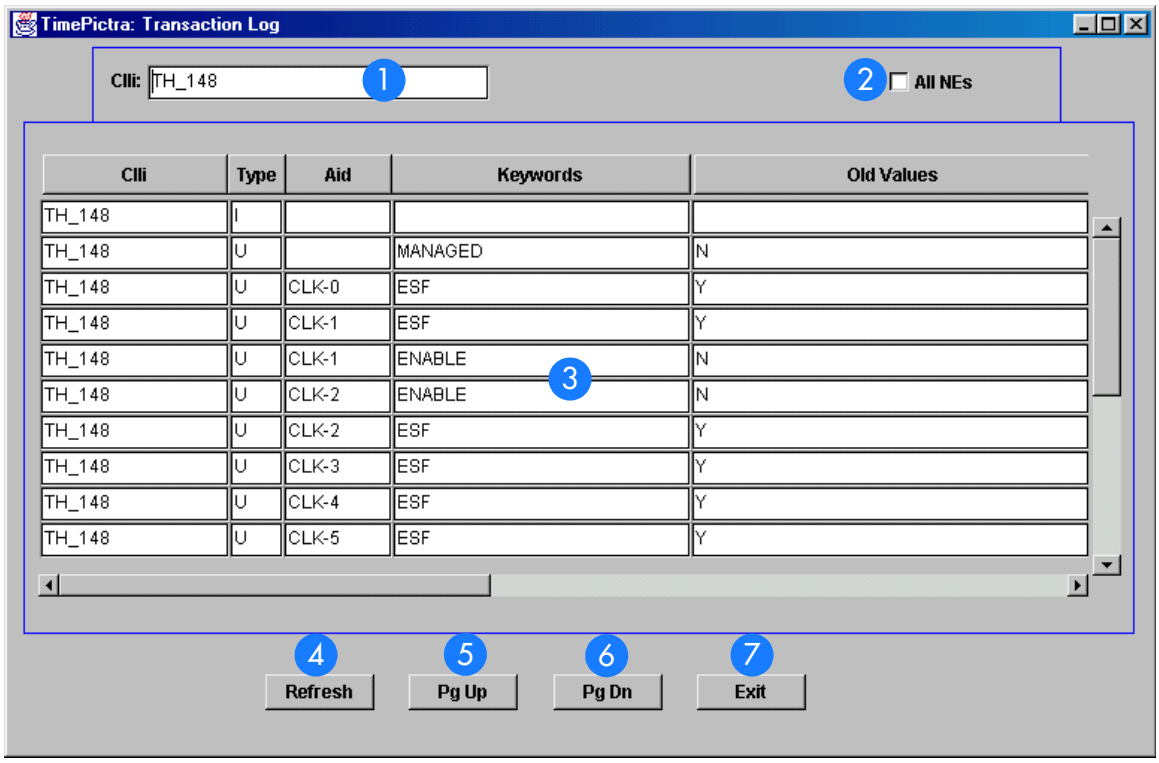


Table BB. Transaction Log Dialog Box Description

Item	Description
1	This field includes the name of the network element for which the transaction log is being shown. Double clicking on this field displays a list of Network Elements to choose from.
2	When the All NEs check-box is selected, the dialog box shows the transaction log for all NEs that fall into the management domain of the user currently logged on. Note that when the All NEs check-box is selected, the Clli field is not active, and is not used for filtering Transaction Log entries.
3	This area of the dialog box shows the transaction information in a tabular format. Table BC explains each column of information shown in this area. *Note:* The user must horizontally scroll the screen in order to view all of the columns explained in Table BC.
4	The Refresh button updates the entries, and displays any new transactions, in the dialog box.
5	The Pg Up button scrolls up through the transaction records page by page.
6	The Pg Dn button scrolls down through the transaction records page by page
7	The Exit button closes the Transaction Log dialog box.

Table BC explains the transaction information shown in the Transaction Log dialog box.

Table BC. Transaction Information

Column	Description
Clli	Specifies the name of Network Element for which the record corresponds.
Type	Specifies the kind of transaction that was carried out. I indicates Insert; U indicates Update; D indicates delete.
Aid	Specifies the Aid on the Network Element on which the transaction was carried out. If this field is blank, it indicates that the transaction carried out was an NE-level transaction.
Keywords	The name of the attribute of the NE that the transaction was carried out on.
Old Values	The old value for the Keyword before the changes were made.
New Values	The update that was made to the corresponding Keyword for the NE.
User Id	The ID of the user that was responsible for carrying out the transaction.
Time	The time stamp when the transaction was carried out.
Object Type	The type of object associated with the operation.

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NE Information - DCD Version 5.01.05

App. A

This chapter provides information and procedures that are specific to the DCD Version 5.01.05 Network Element.

Network Element Status

The software contains several dialog boxes that summarize the status of the various equipment cards within a selected DCD Version 5.01.05 NE. These dialog boxes present displays which visually resemble the equipment panels of the various cards in the NE. The status summary displays are as follows:

- *Network Element Status dialog box* - This dialog box is the main status summary display invoked from the synchronization map or Launch Pad. It contains some general status information for the selected NE, as well as panel displays for the MIS, MRC, CLK, and PSM boards that are installed in the master shelf of the NE.

- *Master Shelf Output Cards dialog box* - This dialog box contains panel displays for the output cards contained in the master shelf of the selected NE.

- *Expansion Shelf X Output Cards dialog boxes* - These dialog boxes contain panel displays for the cards contained in the expansion shelves of the selected NE.

The following paragraphs provide more information on these status display dialog boxes.

A

Network Element Status and Master Shelf dialog boxes

The Network Element Status and Master Shelf dialog boxes display a summary of the status of the MIS, MRC, CLK, and PSM boards in the Master Shelf of the selected NE. The dialog box contains panel displays which show the state of some of the indicators on the card's front panels. Figure 46 and Table BD briefly explain the Network Element Status Master Shelf dialog boxes.

Figure 46. Network Element Status and Master Shelf Dialog Boxes

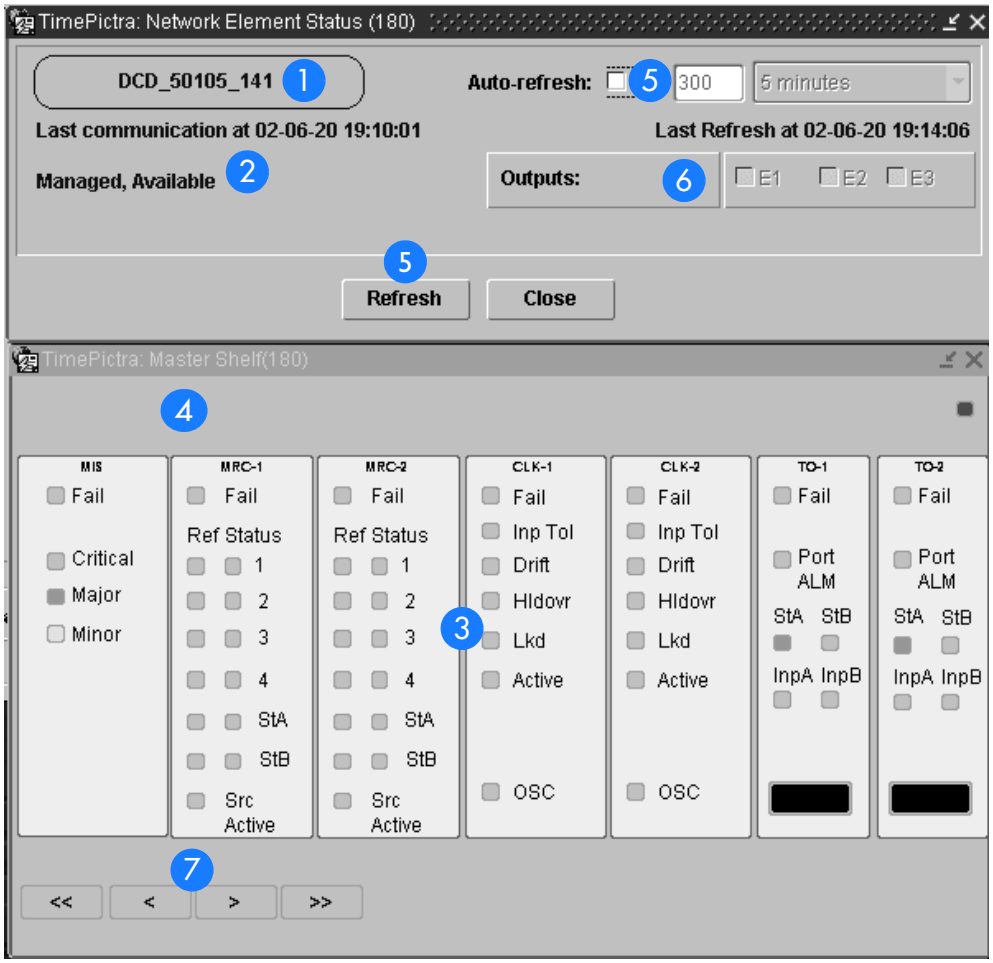


Table BD. Network Element Status and Master Shelf Dialog Box Description

Item	Description
1	The CLLI code of the NE to which the status display applies is shown here. This field cannot be edited; it reflects the CLLI code of the NE that is selected in the target list area of the Launch Pad when the dialog box is called up.
2	This area reports whether or not the selected NE is currently Managed, Available, etc. The "Last communication at" field contains the date and time at which the last successful communication between the software and the selected NE took place. This communication can be the reception of an event, or any successful command/response sequence, such as successful reception of a response to a heartbeat (`RTRV-HDR`) message.

A

Table BD. Network Element Status and Master Shelf Dialog Box Description (cont'd)

Item	Description
3	This area shows the current status of the various equipment cards in the master shelf of the NE via status indicators, which simulate some of the LED indicators on the cards. If any of the equipment cards are not present, the corresponding slot in this area will be blank and a "NA" (not available) message will be shown. *Note:* If the selected NE is unavailable, this area will be blank and the message "----- Status Unknown -----" will be displayed.
4	The area above the equipment card slots shows the current status of the GTI cards in the DCD-LPR shelf via status indicators, which simulate some of the LED indicators on the cards. *Note:* If the DCD-LPR shelf is not installed, this area will be blank.
5	The "Auto-refresh" settings determine the frequency at which the information in the status display is automatically updated. If the "Auto-refresh" check-box is selected, the information in the status display will be automatically refreshed at the interval specified in either the drop-down list or entry field provided (for the default setting, the auto-refresh feature is disabled). If the "Auto-refresh" check-box is de-selected, the status information will not be automatically refreshed. The display can be manually refreshed at any time, however, by clicking the Refresh button. *Note:* If you change the seconds in the entry field, the drop-down list will not adjust to reflect the new value, but the entry field value will take precedence over the interval suggested by the drop-down list. "Last Refresh at" shows the last time the status information was refreshed.
6	Selecting an expansion shelf check-box ("E1," "E2," or "E3") invokes and displays the pertinent Expansion Shelf *X* Output Cards dialog box, and deselecting the check-box closes it. *Note:* If a given expansion shelf is not present in the NE's configuration, the check-box for it will be inactive and appear grayed out.
7	The arrow buttons function just as you would expect. Clicking on the single arrow will scroll the inventory displayed a little, and clicking on the double arrows will scroll through the inventory displayed a lot.

Note: Refer to hardware manual for cause and effect of these LEDs.

A

Expansion Shelf *X* Output Cards dialog box

The Expansion Shelf *X* Output Cards dialog box contains panel displays for the equipment cards contained in the expansion shelves of the selected NE. These dialog boxes can be selectively viewed or hidden from view by selecting or deselecting the pertinent check-box (“E1,” “E2,” or “E3”) within the Network Element Status dialog box. Figure 47 and Table BE briefly explain the Expansion Shelf *X* Output Cards dialog box.

Figure 47. Expansion Shelf *X* Output Cards Dialog Box

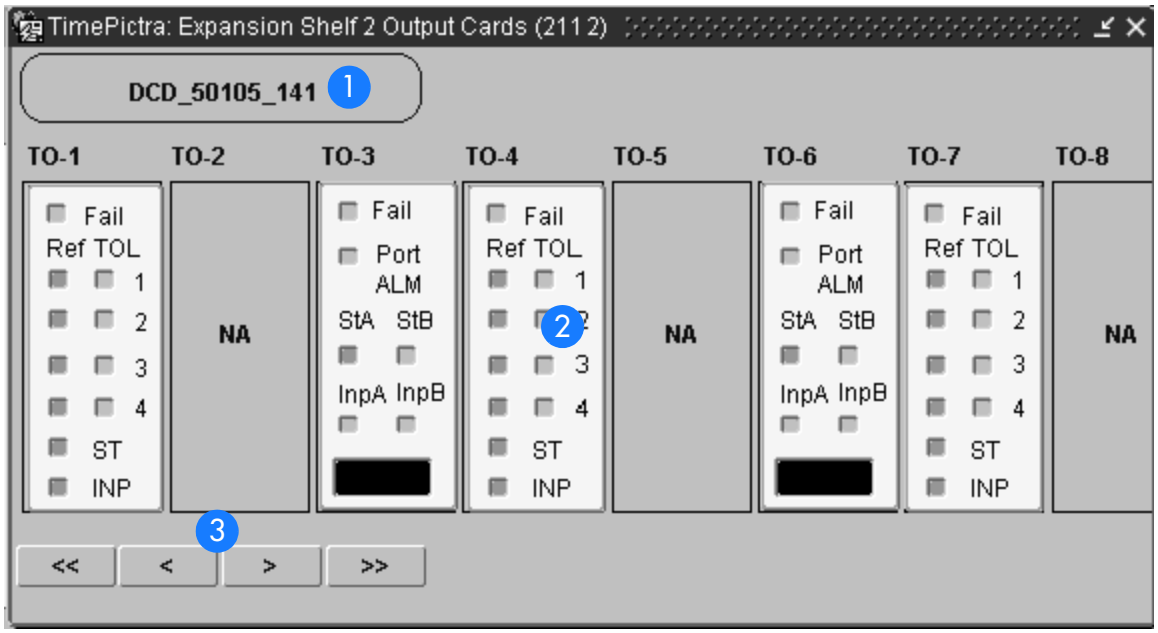


Table BE. Expansion Shelf *X* Output Cards Dialog Box Description

Item	Description
1	The CLLI code of the NE to which the status display applies is shown here. This field cannot be edited; it reflects the CLLI code of the NE that is selected in the target list area of the Launch Pad when the dialog box is called up.
2	This area shows the current status of the various Timing Output (TO) cards in the pertinent expansion shelf, as well as the MIS card in that shelf, via status indicators, which simulate some of the LED indicators on the cards. If any of the TO cards are not present, the corresponding slot in this area will be blank and a “NA” (not available) message will be shown.
3	The Expansion Shelf *X* Output Cards dialog box is wide. If the user reduces the width of the dialog box, as might be necessary to fit it to a smaller screen, some slots will not fit into the resized viewing area. In those cases, the horizontal scroll bar can be used to view status information for cards that are not currently in the viewing area of the dialog box.

A

Note: Refer to hardware manual for cause and effect for LEDs.

Status Panel Indicator Descriptions

Tables BF, BG, BH, BI, BJ, and BK briefly explain the status indicators shown for each card in the NE:

Table BF explains the status indicators shown for the MIS card.

Table BF. MIS Card Status Indicators

Indicator	Description
Fail	When off, the card and power supply are functioning correctly. When red, the card or power supply has failed.
Critical	When off, no critical alarm exists in a card in the shelf. When red, one or more critical alarms exist in a card in the shelf.
Major	When off, no major alarm exists in a card in the shelf. When orange, one or more major alarms exist in a card in the shelf.
Minor	When off, no minor alarm exists in a card in the shelf. When yellow, one or more minor alarms exist in a card in the shelf.

Note: You can click this indicator when it is lit to display more information on the alarms related to it.

Table BG explains the status indicators shown for the MRC card.

Table BG. MRC Card Status Indicators (shown as Input Card in the Status Form)

Indicator	Description
Fail	When red, self tests performed during power-up have failed, or the card has failed.
Ref (1, 2, 3, 4, StA, StB)	When off, the respective input is not enabled. When green, the respective input is enabled and passed the error check. When red, the respective input failed the error check (high CRC, OOF, BPV, AIS, or LOS).

Table BG. MRC Card Status Indicators (shown as Input Card in the Status Form) (cont'd)

Indicator	Description
Status (1, 2, 3, 4, StA, StB)	When off, the respective input has been accepted by majority vote and has not exceeded the stability threshold. When green, the respective input has been selected as first priority. When yellow, the respective input has been rejected because it has exceeded the stability threshold.
Src Active	When off, the card is in standby mode. When green, the card is on-line, providing DCD reference to the ST and Output cards.

Note: If this indicator is not lit, then the card is in the Standby state. If the Src Active indicator is not lit, clicking on it will force the associated MRC card to the Active state, which in turn forces the other, currently active card to the Standby state.

Table BH explains the status indicators shown for the CLK card.

Table BH. CLK Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed.
Inp Tol	When off, the input frequency offset is within the pull in range. When red, the input frequency offset is greater than the pull-in range.
Drift	When off, the input reference rate of frequency change, as compared to the oscillator output is within the factory-set threshold. When yellow, the input reference rate of frequency change, as compared to the oscillator output, has exceeded the factory-set threshold.
Hldovr	When off, the system is not in a holdover state. When green, the card has warmed up, and neither input reference is present or not qualified. When red, all clock input signals are removed or they exceeded the pull-in range, causing the clock to go into holdover mode.
Lkd	When off, the card has not converged on the input reference. When green, the card has converged on the input reference.

Table BH. CLK Card Status Indicators (cont'd)

Indicator	Description
Active	When off, the card is not providing internal reference to the timing output cards. When green, the card is active and providing internal reference to the timing output cards.
OSC	When off, the oscillator is functioning properly. When red, the oscillator has failed, which also disables the card's output.

Note: When the CLK card fails, its output is disabled and a major alarm is generated.

Table BI explains the status indicators shown for the PSM card.

Table BI. PSM Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed, all ports have failed, or there is a loss of input reference to the card.
Ref (1, 2, 3, 4)	When off, the respective input is not enabled. When green, the respective input is enabled and has no E1 or T1 errors. When red, the respective input is enabled but has excessive E1 or T1 errors.
TOL (1, 2, 3, 4)	When off, the respective input is not enabled, or enabled within stability tolerance. When green, the respective input is enabled and out of stability tolerance.
ST	When off, no DCD shelf clock cards are active. When green, at least one DCD shelf clock card is active.
INP	When off, no clock cards or clock input cards are active. When green, at least one clock card or clock input card is active.

Table BJ explains the status indicators shown for the GTI card.

Table BJ. GTI Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed.
Output	When off, the GTI output is not active. When green, the GTI output is active. When red, the GTI output is disabled.
Input	*p/n 090-45100-11 or -12.* When green, the GPS input is present and valid. When red the GPS is powering up, or the GPS input is invalid. *p/n 090-45100-13 and -14.* When green, the GPS input is present and valid, when off, a GPS INVALID condition exists. When red, GPS INVALID has escalated to a minor or major alarm. *p/n 090-45100-15, -16, -17, and -18.* When green, the GPS input is present and valid. When off, a GPS INVALID minor alarm condition exists. When lit red, GPS INVALID has escalated to a major alarm.
Alarm	Indicates that GTI alarm conditions exist.

Note: Initially, this indicator is not lit until GTI LOCK, to indicate that the GTI output is not guaranteed to meet specification and is in AIS or squelch.

Table BK explains the status indicators shown for the TO cards.

Table BK. TO Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed, all ports have failed, or there is a loss of input reference to the card.
Port ALM	When off, the card is functioning correctly. When red, one to ten outputs have failed.
StA	When off, clock card A is not supplying the input reference for the card. When green, clock card A is supplying the input reference for the card. When red, the reference has been disqualified.

A

Table BK. TO Card Status Indicators (cont'd)

Indicator	Description
StB	When off, clock card B is not supplying the input reference for the card. When green, clock card B is supplying the input reference for the card. When red, the reference has been disqualified.
InpA	When off, the card is not receiving a reference signal from clock input A. When green, the card is receiving a reference signal from clock input A. When red, the reference has been disqualified.
InpB	When off, the card is not receiving a reference signal from clock input B. When green, the card is receiving a reference signal from clock input B. When red, the reference has been disqualified.

A

Deleting or Adding Equipment or Ports

When equipment (cards) are physically removed from or added to the chassis of a DCD Version 5.01.05 NE, the MIS card does not get automatically updated to reflect the change. Effecting the change in the NE's MIS card involves explicitly modifying the database on it. The procedures in this section explain how to add or delete equipment and ports on the NE's MIS card using TimePictra.

Delete Equipment or Ports from an NE

The following procedures can be used to delete equipment from the MIS cards resident database, as well as delete input or output ports from input or output card records in the NE's database.

Note: When deleting equipment or ports from the NE's MIS card, a specific sequence *must* be followed or an `Invalid Sequence` error will result and the operation will fail. As an example, to delete a card; you must first disable all ports on the card, then disable the card, then delete all ports on the card, then delete the card. The following general rules always apply when deleting equipment or ports:

- Before a card can be disabled, *all* ports on the card must be disabled.
- Before any port on a card can be deleted, the card must be disabled.
- Before a card can be deleted, *all* ports on the card must be deleted.
- After a card or any port is deleted, the NE must be remanaged by TimePictra.

A

Disable Ports On A Card

Procedure BN explains how to disable ports on a card.

Procedure BN. Disabling Ports on a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to disable ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be disabling input or output ports.
4	In the "Selected Card" field, choose the card from which the ports will be disabled.

Procedure BN. Disabling Ports on a Card (cont'd)

Step	Action
5	For the ports being disabled, choose No in the "Enabled" drop-down fields, then answer appropriately in the question and confirmation boxes that follow. *Note that if you will be disabling the card, all ports on the card must be disabled.*
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box. *Note:* A user can use PassThru and give the TL1 command that can disable all ports at once. The relevant TL1 command is RMV-PORT. Refer to the TL1 manual for exact syntax.

End of Procedure

Disable A Card

Note: **Before a card can be disabled, *all* ports on the card must be disabled (refer to the above procedure).**

Procedure BO explains how to disable a card.

Procedure BO. Disabling a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to disable the card.
2	Invoke the Pass-Thru Interface dialog box: *Synchronization Map* - Click the Pass Thru menu item in the TimePictra menu. *Launch Pad* - Click the Pass Thru... shortcut icon, or choose Pass Thru... from the PassThru menu.
3	Enter the following command into the "Command" field of the Pass-Thru Interface dialog box: `RMV-EQPT::card_aid:Ctag;` Where *card_aid* is the card which is being disabled, and *Ctag* is the correlation tag. *Note:* The *Ctag* can be any alphanumeric string from one to six characters in length. Refer to the TL1 manual for details.
4	Click the Send button to send the command, then upon indication of successful execution, click the Close button to close the Pass-Thru Interface dialog box.

End of Procedure

Delete Ports On A Card

Note: **Before any port on a card can be deleted, *all* ports on the card must first be disabled, then the card must be disabled (refer to the above procedures).**

Procedure BP explains how to delete ports on a card.

Procedure BP. Deleting Ports on a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to delete ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be deleting input or output ports.
4	In the "Selected Card" field, choose the card from which the ports will be deleted.
5	For each port being deleted, select the port number in the "Port" column, click the Delete Port button, then answer appropriately in the question and confirmation boxes that follow. *Note that if you will be deleting the card, all ports on the card must be deleted.*
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
7	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology....* in this manual. *Note:* A user can use PassThru and give the TL1 command that can delete all ports at once. The relevant TL1 command is DLP-PORT. Refer to the TL1 manual for exact syntax.
End of Procedure	

Delete A Card

Note: **Before a card can be deleted, *all* ports on the card must first be disabled, then the card must be disabled, then all ports on the card must be deleted (refer to the above procedures).**

Procedure BQ explains how to delete a card.

A

Procedure BQ. Deleting a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to delete the card.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the Equipment context-switch button.
4	Choose the radio button (LPR, Master, Expansion 1, 2, 3) as is appropriate for the rack where the card is to be deleted.
5	In the "CardType" field, choose the type of card to be deleted.
6	Select the card to be deleted in the "Card" column, click the Delete Card button, then answer appropriately in the question and confirmation boxes that appear. *Note:* One such box that appears states that the user should re-manage the NE. That step is stated below.
7	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
8	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology....* in this manual.
End of Procedure	

A

Add Equipment or Ports to an NE

The following procedures can be used to add equipment to the MIS cards resident database, as well as add input or output ports to input or output card records in the NE's database.

Note: A card has to be added physically in the NE before using TimePictra to populate and change the card's configuration on the MIS card.

Add A Card

Procedure BR explains how to add a card.

Procedure BR. Adding a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to add a card.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the Equipment context-switch button.
4	Choose the radio button (LPR, Master, Expansion 1, 2, 3) as is appropriate for the rack where the card is to be added.
5	In the "CardType" field, choose the type of card to be added.
6	Click the Add Card button, then click the OK button in the information box that appears.
7	In the "Slot" drop-down field of the Add Card dialog box that appears, choose the slot that the added card is installed in, click OK, then answer appropriately in the question and confirmation boxes that follow. *Note:* One such box that appears states that the user should re-manage the NE. That step is stated below.
8	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
9	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology....* in this manual.
	End of Procedure

A

Add Ports To A Card

Note: **When a card is added to the NE's resident database, a default configuration for ports and other parameters is entered for the card. The following procedure can be used to add ports that do not exist in the default configuration.**

Procedure BS explains how to add ports to a card.

Procedure BS. Adding Ports to a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to add ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be adding input or output ports.
4	In the "Selected Card" field, choose the card to which the ports will be added.
5	For each port being added, select the port number in the "Port" column, click the Add Port button, click OK in the Add Port dialog box, then answer appropriately in the question and confirmation boxes that follow.
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
7	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology*.... in this manual.
	End of Procedure

A

Restore A Card To Service

Note: **When a card is first added to the NE's database, it is in the maintenance state. Ports on a card can be enabled only when the card is not in the maintenance state. This procedure explains how to restore a card to service from the maintenance state.**

Procedure BT explains how to restore a card to service.

Procedure BT. Restoring a Card to Service

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to restore the card.

Procedure BT. Restoring a Card to Service (cont'd)

Step	Action
2	Invoke the Pass-Thru Interface dialog box: *Synchronization Map* - Click the Pass Thru menu item in the TimePictra menu. *Launch Pad* - Click the Pass Thru... shortcut icon, or choose Pass Thru... from the PassThru menu.
3	Enter the following command into the "Command" field of the Pass-Thru Interface dialog box: `RST-EQPT::card_aid:Ctag;` Where *card_aid* is the card which is being restored to service, and *Ctag* is the correlation tag. *Note:* The *Ctag* can be any alphanumeric string from one to six characters in length.
4	Click the Send button to send the command, then upon indication of successful execution, click the Close button to close the Pass-Thru Interface dialog box.
	End of Procedure

A

Enable Ports On A Card

Procedure BU explains how to enable ports on a card.

Procedure BU. Enabling Ports on a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to enable ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be enabling input or output ports.
4	In the "Selected Card" field, choose the card from which the ports will be enabled.
5	For the ports being enabled, choose Yes in the "Enabled" drop-down fields, then answer appropriately in the question and confirmation boxes that follow.
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
End of Procedure	

A

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the Symmetricom Digital Clock Distributor (DCD) Version 5.01.05. The sub-sections within this section reflect the six setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- NE (Network Element) Settings
- Input settings
- Threshold settings
- Output settings
- Equipment settings
- Event settings

Figure 48 below shows the Modify Configuration dialog box. The View Configuration dialog box is essentially identical, except no NE settings can be modified from within it.

The upper portion of the dialog box shows some basic information about the chosen NE, such as its CLLI Code, management status, location etc., and contains six context-switch buttons that determine the character of the lower portion of the dialog box. In the figure, below, the Network context-switch button has been selected.

A

Figure 48. Modify Configuration

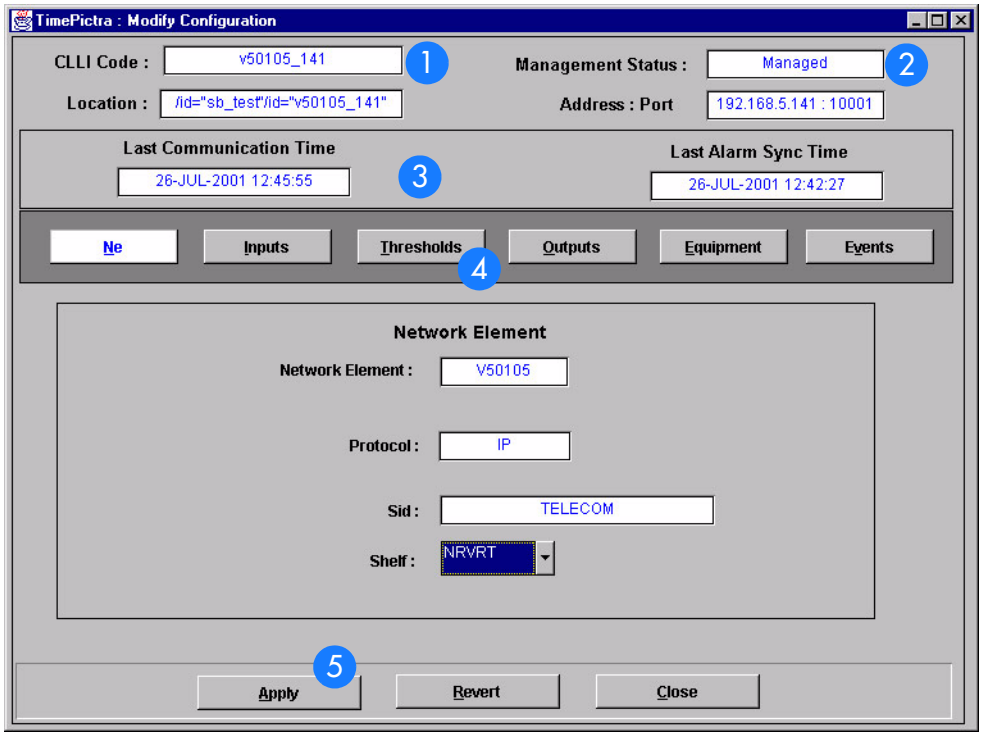


Table BL. Configuration:Modify Dialog Box Description

Item	Description
1	The CLLI Code of the selected NE as well as its location is shown here. These fields cannot be edited; they reflect the NE that is selected on the synchronization map when the dialog box is called up.
2	The management status of the selected NE is shown here. The status of the selected NE must be shown as Managed in order to modify the configuration parameters. The IP address and port of the selected NE is also shown. These fields cannot be edited.
3	Last Communication time shows the time and date when communications last took place with the selected NE. Last Alarm Sync Time displays the time and date when the last Alarm Synchronization process took place on the selected NE. Neither of these fields can be edited.

Table BL. Configuration:Modify Dialog Box Description

Item	Description
4	Click one of the six context-switch buttons to determine the category of configuration settings that can be modified in the lower portion of the dialog box. The context-switch buttons are: NE, Inputs, Thresholds, Outputs, Equipment and Events.
5	Click the Apply button to cause the configuration changes made in the bottom portion of the dialog box to take effect. Clicking the Revert button restores the configuration changes to those stored in the database, effectively cancelling the changes that were made prior to clicking Apply. *Note:* The Revert button applies only to the current screen. Once a context switch takes place, changes made to the previous category cannot be undone.

Each sub-section includes the following:

- Screen captures of action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL/1 command or parameter code (or both) within the manufacturer's documentation where more detailed information on the particular setting can be found.

Note: If a record within an action panel appears with a blank "Port," "Slot," or "Card" specifier, no entry exists in the NE's resident database for the port, slot, or card. The information shown in the record is default data for the record.

The software communicates with NEs via a network connection. there are several networking settings that are configurable in this dialog box. Figure 37 shows the layout of the action panel for Network Element settings and Table BM gives a brief description of each setting. The COMMAND column in the table provides a reference point in the DCD Version 5.01.05 documentation where more detailed information can be found.

Table BM. Network Element Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Protocol	NE	The networking protocol used by the NE.	*None*
SID	*NE*	The system identification code assigned to the NE.	SET-SID (command)
Network Element	*NE*	The Network Element equipment type.	*None*
Shelf	*NE*	Indicates whether the shelf is in revertive or non-revertive mode.	SET-ATTR-CONT (command)

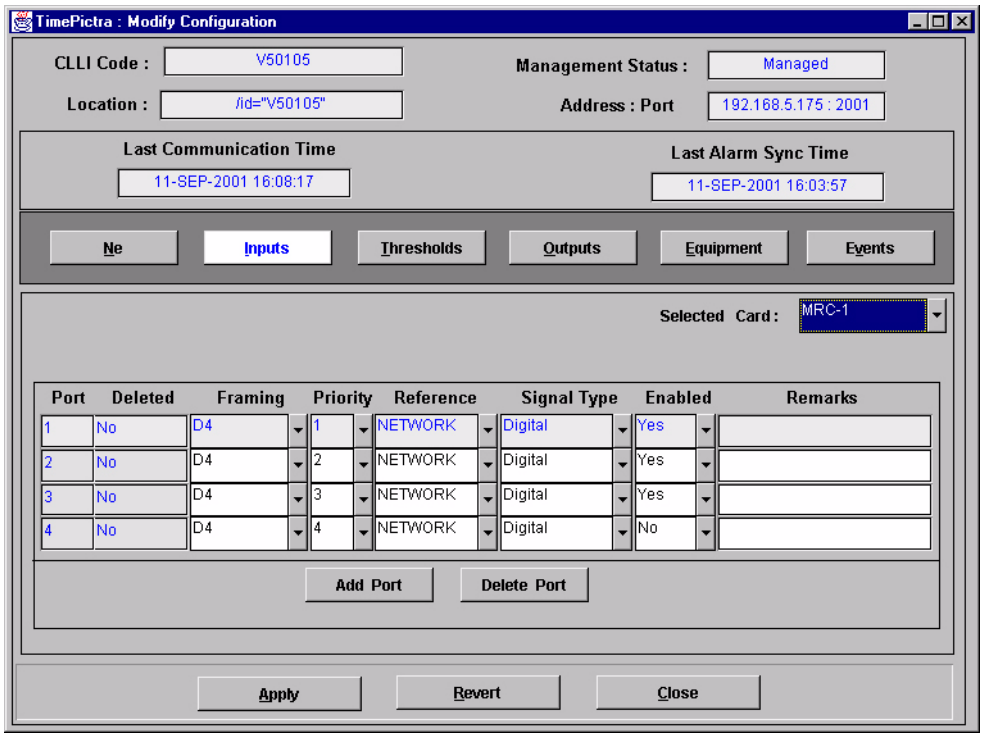
a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the DCD Version 5.01.05 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Input settings

The Multi-Reference Controller (MRC) Card of the DCD Version 5.01.05 can accept up to four reference input signals via four, separately configurable input ports. The Precision Synchronization Monitor (PSM) card provides performance and synchronization monitoring for up to four input signals.

Several settings related to the input signals are configurable on the MRC and PSM cards. Figures 49 and 50 show the layout of the action panel for MRC and PSM input settings, and Table BN gives a brief description of each setting, as well as a reference to the V50105 documentation, where more detailed information can be found.

Figure 49. Action Panel - MRC Cards



A

Figure 50. Action Panel - PSM Cards

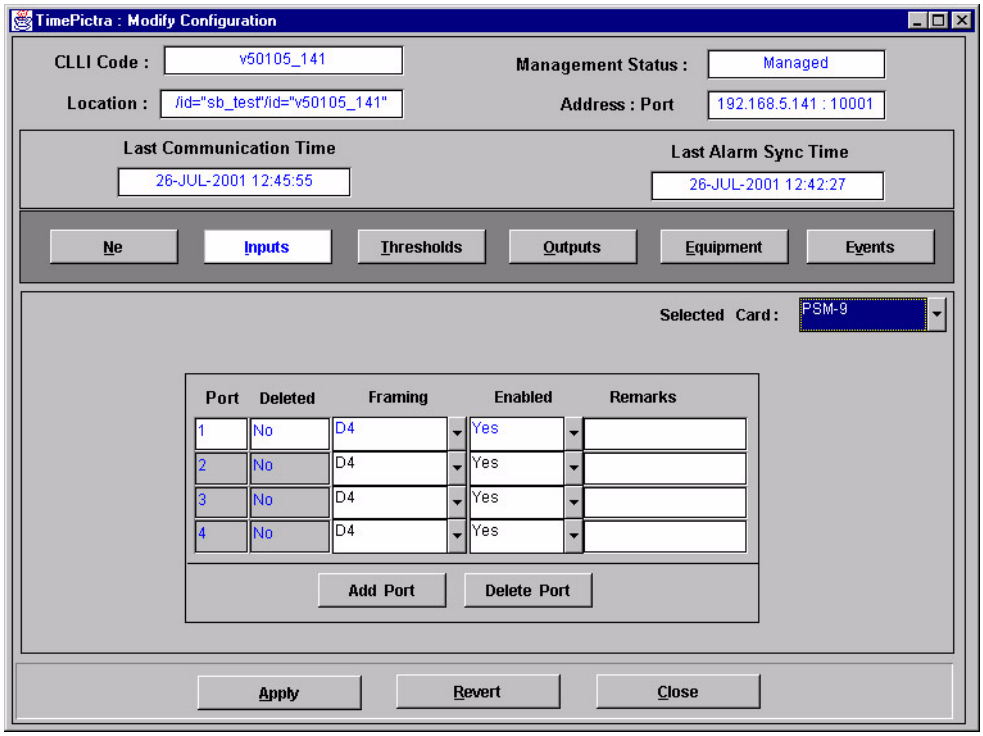


Table BN. Input Settings

Setting/Button	Card	Description	COMMAND (parameter)[a]
		Port Specifier	
Port	MRC, PSM	The number in this column indicates the input port to which the remainder of the port-specific parameters in the row apply.	*None*
		Port-Specific Settings[b]	
Deleted	MRC, PSM	"Yes" indicates that the input port has been deleted from the system database. "No" indicates that the input port is included in the system database.	ENT-PORT DLT-PORT
Enabled	MRC, PSM	"Yes" indicates that the port is in service. "No" indicates that the port has been removed from service (is in the maintenance state).	RMV-PORT RST-PORT
Framing	MRC, PSM	The framing format for the input.	ED-PORT (framing)
Priority	MRC	The assigned priority of the input port.	ED-PORT (priority)
Reference	MRC	The type of reference input signal to the NE.	ED-PORT (reference type)
Signal Type	MRC	The input signal type, either analog or digital.	ED-PORT (signal type)

A

Table BN. Input Settings (cont'd)

Setting/Button	Card	Description	COMMAND (parameter)[a]
Remarks	MRC, PSM	A text field for entering remarks (TimePictra Database only)	*None*
		Buttons	
Add Port	MRC, PSM	Clicking this button invokes a dialog box from where you can add a port to the system database for the selected card.	ENT-PORT
Delete Port	MRC, PSM	Clicking this button deletes the selected port from the system database.	DLT-PORT

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the DCD version 5.01.05 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Port-Specific Settings* apply specifically to the input port specified by the Port Specifier.

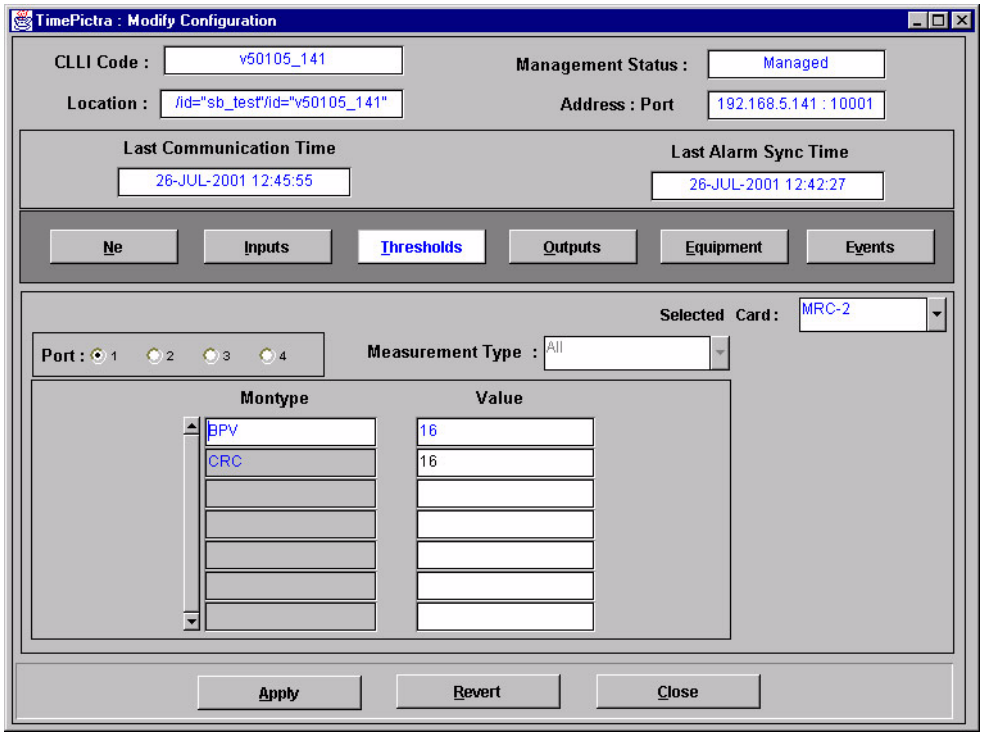
A

Threshold settings

The Multi-Reference Controller (MRC) Card of the DCD version 5.01.05 checks up to four reference input signals for digital errors (BPV and CRC errors) by checking and comparing the digital error readings against set thresholds. In addition, the Precision Synchronization Monitor (PSM) card performs MTIE, TDEV, BPV, and CRC measurements on up to four input signals, with comparison against set measurement thresholds.

Measurement thresholds are configurable on the MRC and PSM cards. Figures 51 and 52 show the layout of the action panel for MRC and PSM threshold settings, and Table BO gives a brief description of each setting, as well as a reference to the DCD version 5.01.05 documentation, where more detailed information can be found.

Figure 51. Action Panel - MRC Cards



A

Figure 52. Action Panel - PSM Cards

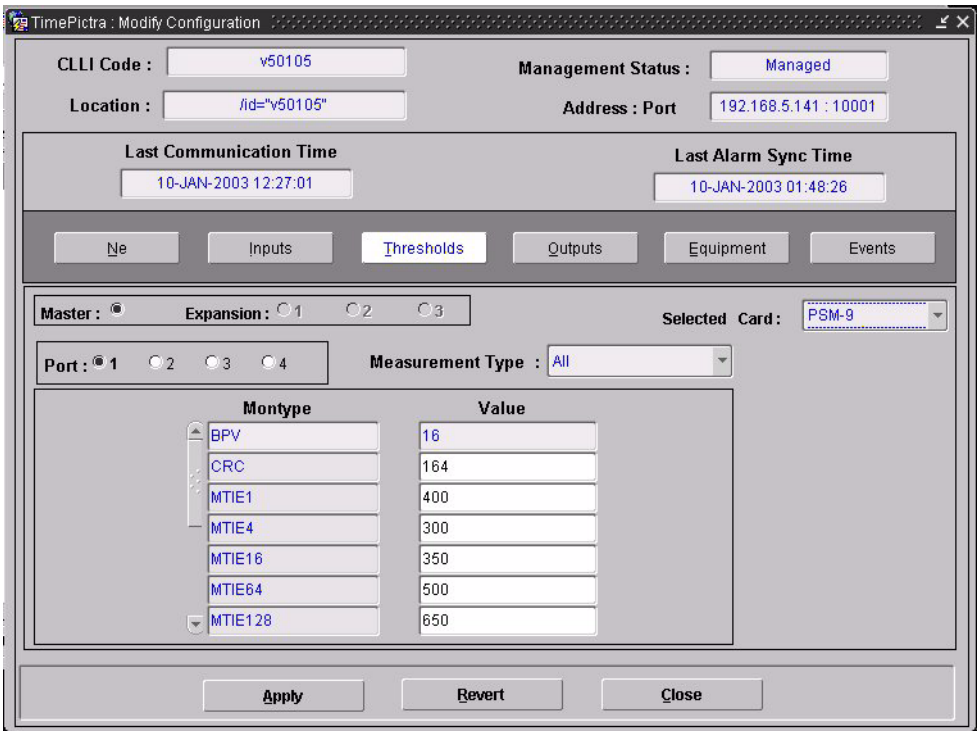


Table BO. Threshold Settings

Setting/Button	Card	Description	COMMAND (parameter)[a]
		Port Selector	
Port	MRC, PSM	The selection made using these radio buttons specifies the port to which the remainder of the port-specific parameters in the lower portion of the action panel apply.	*None*
		Port-Specific Settings[b]	
Measurement Type	MRC, PSM	This selection acts as a filter to display only MTIE, TDEV, BPV, or CRC montypes, or all montypes. *(TimePictra database only)*	*None*
Montype	MRC, PSM	The type of performance monitoring register in the memory storage.	SET-TH-PORT (montype)
Value	MRC, PSM	The threshold level of the value in the specified performance monitoring register.	SET-TH-PORT (thlev)

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the DCD version 5.01.05 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Port-Specific Settings* apply specifically to the input port specified by the Port Selector.

Output settings

The Timing Output (TO) Cards of the DCD version 5.01.05 provide up to ten timing output signals each. Output signals can be enabled or squelched on an individual basis, and the output signal type (analog or digital) can be specified for each output.

Settings related to the output signals are configurable on the TO cards. Figure 53 shows the layout of the action panel for TO settings, and Table BP gives a brief description of each setting, as well as a reference to the DCD version 5.01.05 documentation, where more detailed information can be found.

Figure 53. Action Panel - TO Cards

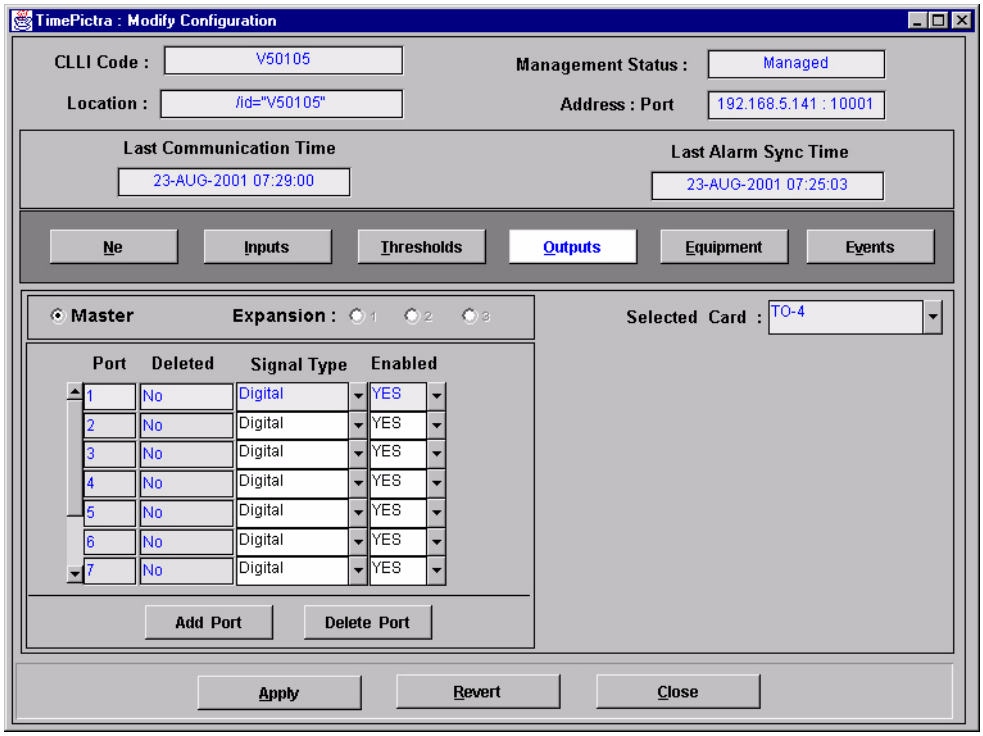


Table BP. Output Settings

Setting/Button	Card	Description	COMMAND (parameter)[a]
		Shelf Selector	
Master/Expansion (radio buttons)	TO	The selection made using these radio buttons specifies the equipment shelf to which the remainder of the port-specific parameters in the lower portion of the action panel apply.	*None*
		Port Specifier	

Table BP. Output Settings (cont'd)

Setting/Button	Card	Description	COMMAND (parameter)[a]
Port	TO	The number in this column indicates the port to which the remainder of the port-specific parameters in the row apply.	*None*
		Port-Specific Settings[b]	
Deleted	TO	"Yes" indicates that the output port has been deleted from the system database. "No" indicates that the output port is included in the system database.	ENT-PORT DLT-PORT
Enabled	TO	"Yes" indicates that the port is in service, which also indicates that its output signal has been enabled (turned on). "No" indicates that the port has been removed from service (is in the maintenance state), which also indicates that its output signal has been squelched.	RMV-PORT RST-PORT
Signal Type	TO	The output signal type, either analog or digital.	ED-PORT (signal type)
		Buttons	
Add Port	TO	Clicking this button invokes a dialog box from where you can add a port to the system database for the selected card.	ENT-PORT
Delete Port	TO	Clicking this button deletes the selected port from the system database.	DLT-PORT

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the DCD version 5.01.05 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Port-Specific Settings* apply specifically to the output port specified by the Port Specifier.

A

Equipment settings

Several equipment-level (card-level) settings are configurable on the Multi-Reference Controller (MRC), Precision Synchronization Monitor (PSM), Timing Output (TO), Clock, and GPS Timing Interface (GTI) cards. Figures 54 and 55 show the layout of the action panel for GTI and MRC equipment-level settings, and Table BQ gives a brief description of each setting, as well as a reference to the DCD version 5.01.05 documentation, where more detailed information can be found.

Figure 54. Action Panel - GTI Cards

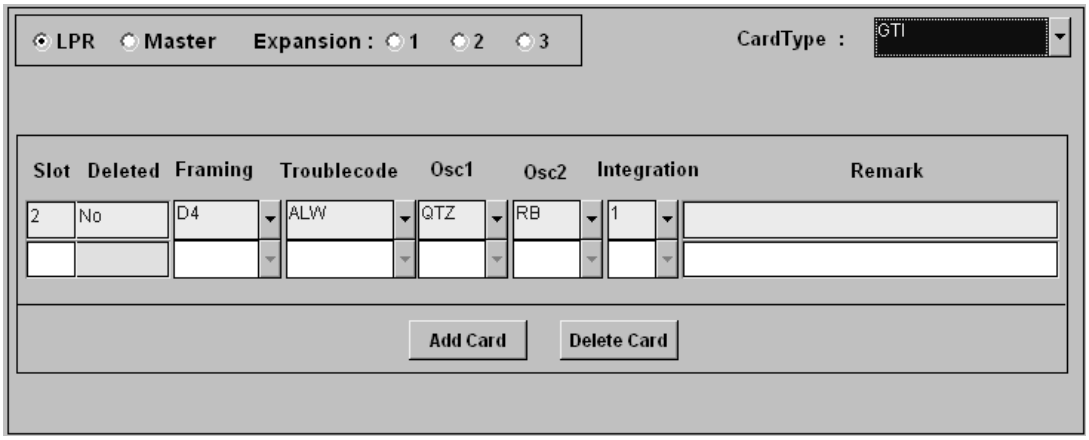


Figure 55. Action Panel - MRC, PSM, Clock Cards

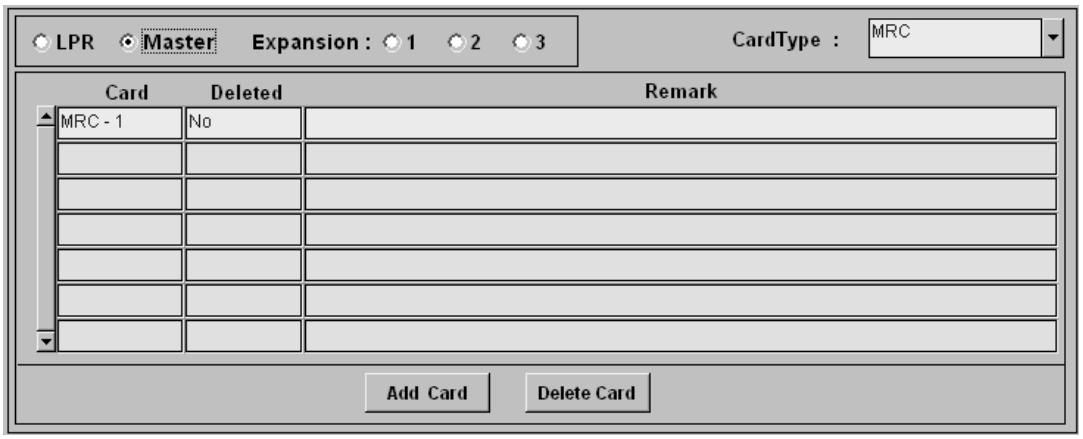


Table BQ. Equipment Settings

Setting/Button	Card	Description	COMMAND (parameter)[a]
		Shelf Selector	

Table BQ. Equipment Settings (cont'd)

Setting/Button	Card	Description	COMMAND (parameter)[a]
LPR/Master/ Expansion (radio buttons)	GTI, Output, MRC, PSM, Clock	The selection made using these radio buttons specifies the equipment shelf to which the remainder of the equipment-specific parameters in the lower portion of the action panel apply.	*None*
		Slot Specifier	
Slot	GTI, Output	*For GTI and Output cards*, the number in this column indicates the equipment slot to which the remainder of the parameters in the row apply.	*None*
		Card Specifier	
CardType	MRC, PSM, Clock	*For MRC, PSM, Clock cards*, the number in this column indicates the card to which the remainder of the parameters in the row apply.	*None*
		Slot/Card-Specific Settings[b]	
Deleted	GTI, Output, MRC, PSM, Clock	"Yes" indicates that the equipment has been deleted from the system database. "No" indicates that the equipment is included in the system database.	ENT-EQPT DLT-EQPT
Framing	GTI, Output	The output framing format for the card.	ED-EQPT (framing)
Integration	GTI	The alarm integration time before an alarm is declared on the LPR.	ED-EQPT (integration)
Osc1	GTI	External clock source 1 (OSC A) to the LPR.	ED-EQPT (osc1)
Osc2	GTI	External clock source 2 (OSC B) to the LPR.	ED-EQPT (osc2)
Portseverity	Output	The severity of the alarm reported upon failure of an output port.	ED-EQPT (portseverity)
Remark	GTI, MRC, PSM, Clock, Output	A text field for entering notes (remarks) concerning the equipment. *(TimePictra database only)*	*None*
Troublecode	GTI, Output	The signal condition (AIS or squelch) of the output upon failure.	ED-EQPT (troublecode)
		Buttons	
Add Card	GTI, MRC, PSM, Clock, Output	Clicking this button invokes a dialog box from where you can add a card to the system database for the selected slot.	ENT-EQPT
Delete Card	GTI, MRC, PSM, Clock, Output	Clicking this button deletes the selected card from the system database.	DLT-EQPT

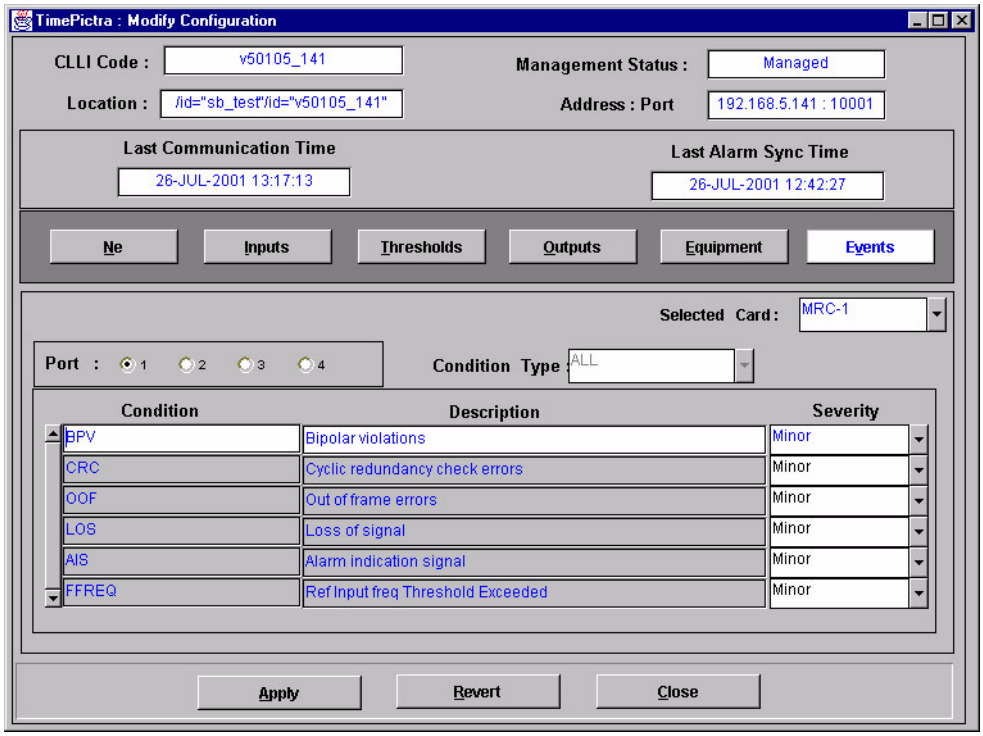
a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the DCD version 5.01.05 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Slot/Card-Specific Settings* apply specifically to the slot or card specified by the Slot or Card Specifier, as appropriate.

Event settings

The Multi-Reference Controller (MRC) and Precision Synchronization Monitor (PSM) cards generate event messages to report certain conditions that have occurred or are occurring within the context of the input signal measurement capability of the cards. Each generated event has an assigned severity level, and this severity level can be changed if desired on a port-by-port basis.

Settings related to severity levels are configurable on the MRC and PSM cards. Figures 56 and 57 show the layout of the action panel for MRC and PSM event severity settings, and Table BR gives a brief description of each setting, as well as a reference to the DCD version 5.01.05 documentation, where more detailed information can be found.

Figure 56. Action Panel - MRC Cards



A

Figure 57. Action Panel - PSM Cards

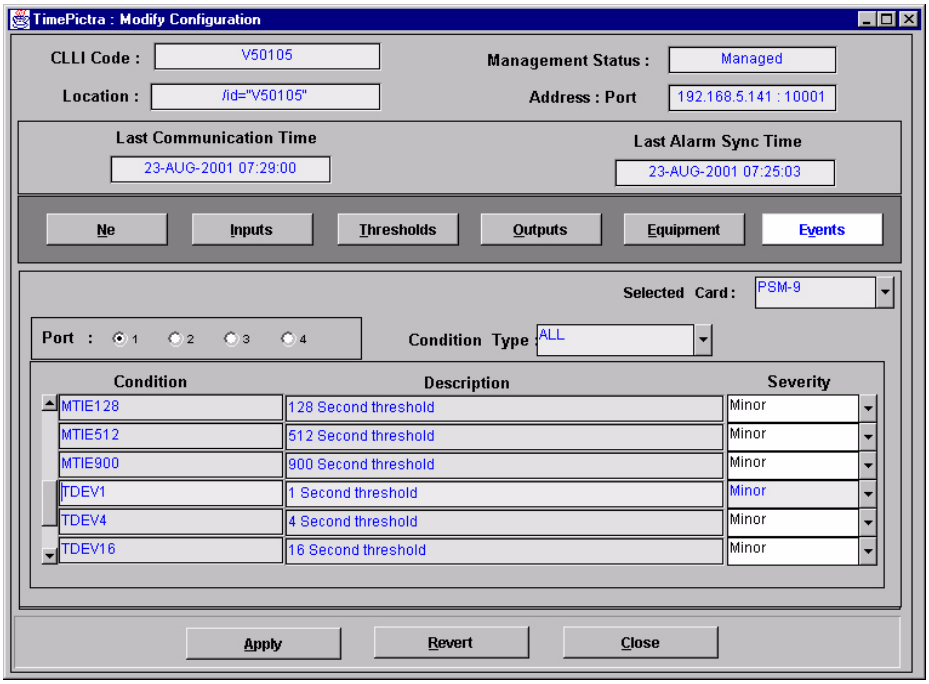


Table BR. Event Settings

Setting/Button	Card	Description	COMMAND (parameter)[a]
		Port Selector	
Port	MRC, PSM	The selection made using these radio buttons specifies the port to which the remainder of the port-specific parameters in the lower portion of the action panel apply.	*None*
		Port-Specific Settings[b]	
Condition Type	PSM	The type of alarm condition requested or being reported.	SET-ATTR-PORT (condtype)
Condition	MRC, PSM	The type of alarm condition.	(typerep)
Description	MRC, PSM	The text description of the alarm or condition reported by the NE.	(conddescr)
Severity	MRC, PSM	The notification code, which indicates the severity of the alarm or event.	SET-ATTR-PORT (ntfcncde)

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the DCD version 5.01.05 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Port-Specific Settings* apply specifically to the input port specified by the Port Selector.

NE Information - DCD Firmware Version 5.04.02/5.05.02/ 5.05.04

This chapter provides information and procedures that are specific to the DCD Firmware Version 5.04.02, 5.05.02, and 5.05.04 Network Elements.

App. B

Network Element Status

The Network Element Status form shows a visual representation of the network element. Though it's not possible to determine the status of all LEDs via TL1 commands, all possible LEDs are represented. This form is very similar to the DCD firmware version 5.01.05 NE Status form, but has added support for a much broader range of rack configurations and equipment. The NE Status form is broken up into the following three sections:

- Network Element Status and Master Shelf dialog boxes - These dialog boxes represent the main status summary display invoked from the synchronization map or Launch Pad, as well as a visual representation of the cards in the master shelf (input, clock, and MIS cards).

- Expansion Card *X* Output Card dialog boxes - The expansion shelf output cards have been segregated from the other cards. Their rack location and status information can be found in these dialog boxes.

Note: Functionally, the DCD 5.05.02/5.05.04 NE has more features than the DCD 5.04.02 NE, however, only functionality that is common to both NEs is represented in the NE Status form.

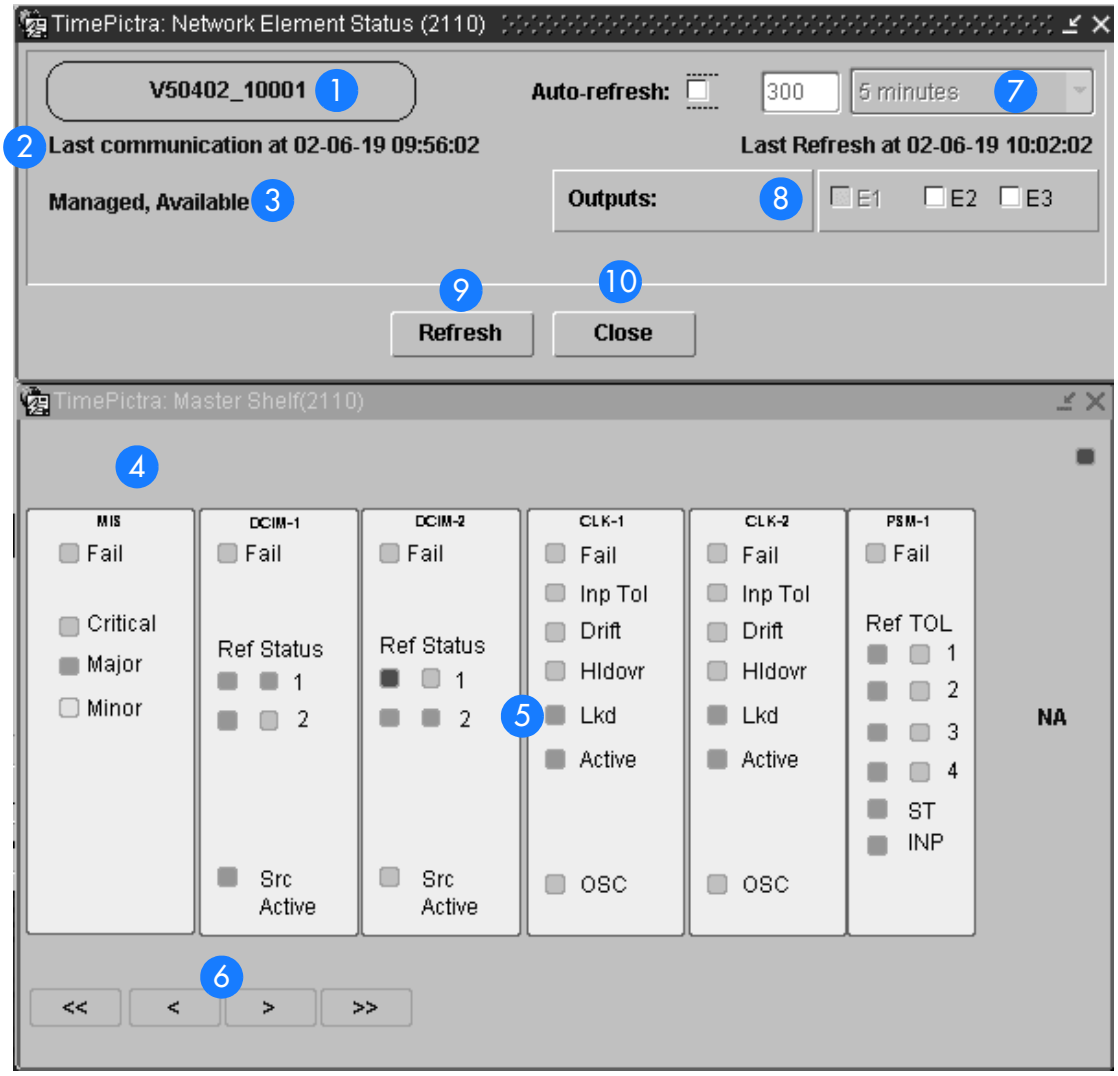
B

Network Element Status and Master Shelf dialog boxes

Figure 58 and Table BS explain how to use the Network Element Status and Master Shelf forms.

Note: Refer also to the section entitled *Output Protection Indication* for an explanation of how protection schemes are indicated in the Master Shelf dialog box.

Figure 58. Network Element Status and Master Shelf Dialog Boxes



B

Table BS. Network Element Status and Master Shelf Dialog Box Description

Item	Description
1	The name given to the network element at the time it was created on TimePictra
2	The last time TimePictra communicated with the network element, and the last time the network element was queried for it's status.
3	The current management status of the network element at the last time this form was refreshed. If the unit is unavailable, the area displaying visual representations of the cards will be replaced with, "----- Status Unknown -----"
4	The two GPS related cards will be shown here. If one or both of them is not present, the space where they would be shown will be empty. Clicking on the AID (e.g. GTI1) will bring up a message box with a brief status of the card.
5	A visual representation of the master shelf cards is shown here. Clicking on one of the colored alarms on the MIS card will spawn the Alarm Viewer with that specific network element and severity in the filter.
6	The arrow buttons function just as you would expect. Clicking on the single arrow will scroll the inventory displayed a little, and clicking on the double arrows will scroll through the inventory displayed a lot.
7	Checking the Auto-refresh box will enable the form to automatically refresh itself. The user is given the option of specifying a specific number of seconds, or choosing a predefined amount of time the form will wait before refreshing itself.
8	Checking or unchecking these boxes will bring up the expansion shelf output card configuration and status for the associated shelf.
9	Use this button to manually refresh the form. Every time the form refreshes, it will immediately query the network element and retrieve it's current status.
10	Exits both the Network Element Status and Master Shelf dialog boxes.
	Note: Refer to the hardware manual for the cause and effect of the LEDs.

B

Expansion Shelf *X* Output Cards Dialog Box

These forms display the status and position of output cards for the racks checked on the main Network Element Status form.

Figure 59 and Table BT explain how to use the Expansion Shelf *X* Output Cards dialog box.

Note: Refer also to the section entitled *Output Protection Indication* for an explanation of how protection schemes are indicated in the Expansion Shelf *X* Output Cards dialog box.

Figure 59. Expansion Shelf *X* Output Cards Dialog Box

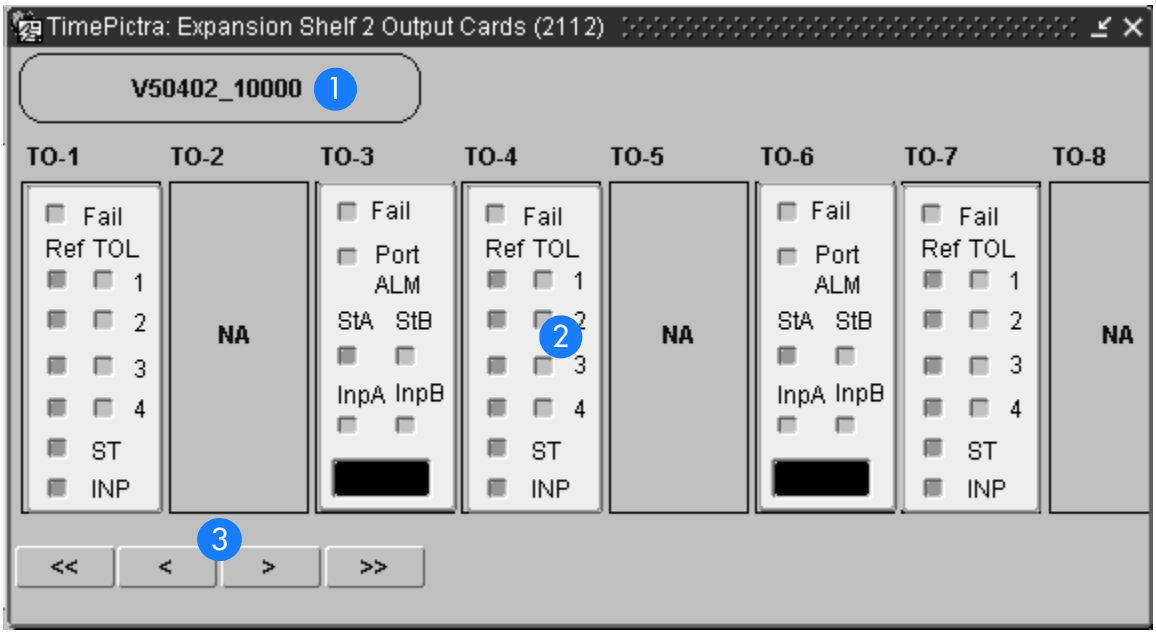


Table BT.Expansion Shelf *X* Output Cards Dialog Box Description

Item	Description
1	The name of the selected network element
2	The AID of the card, and it's visual representation. In this example, the card in TO-1 is a PSM card. All output cards are represented using the same graphic template. In place of the D4/ESF and CAS/CCS/CRC4 LEDs found on output cards, the type of signal being generated is displayed in the text box on the bottom of the card. If a card is either not entered into the MIS cards database or is nonexistent, "NA" will appear in the empty slot.
3	The arrow buttons function just as you would expect. Clicking on the single arrow will scroll the inventory displayed a little, and clicking on the double arrows will scroll through the inventory displayed a lot.

B

Output Protection Indication

Figure 60 and Table BU explain how protection schemes are indicated in the Master Shelf and Expansion Shelf *X* Output Cards dialog boxes. Figure 60 shows the applicable portion of those dialog boxes.

Figure 60. Output Protection Indication

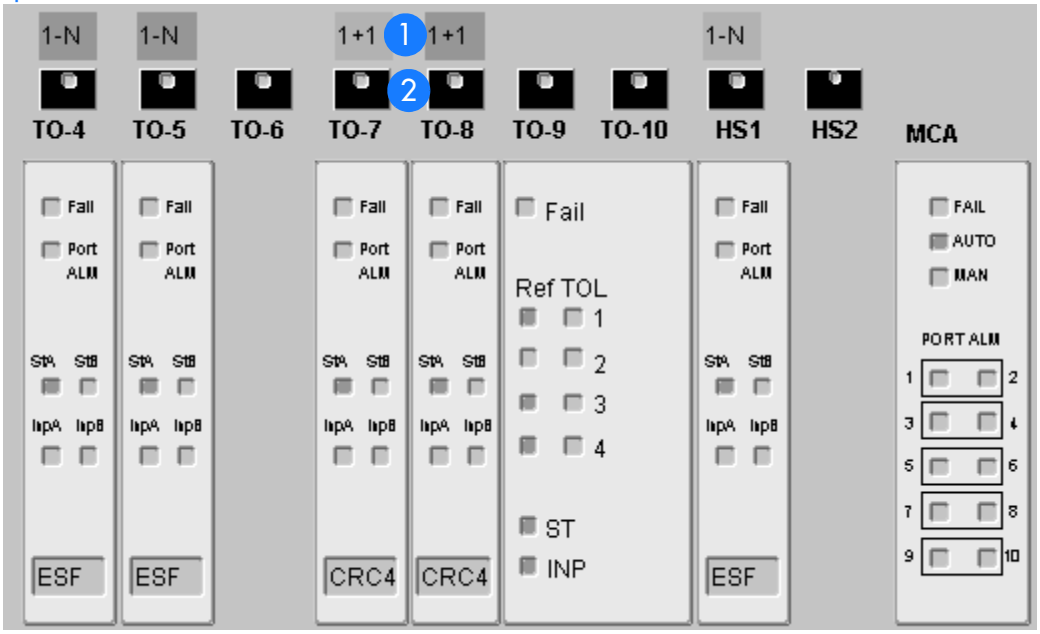


Table BU.Output Protection Description

Item	Description
1	The type of protection scheme, as well as an indication of protection status, is shown here. If this area above a given card is blank, a protection scheme is not currently active for that particular card, or a card is not present in the corresponding slot. A color-coded square above a card indicates that a protection scheme is active for the corresponding card, and the type of protection scheme (1-N, 1+1, 1:1.) is indicated within the square. If the corresponding card is designated as the in-service active card, the color of the square is green. If the corresponding card is designated as the in-service standby card, the color of the square is cyan (light blue). If the color is gray, the protection status of the corresponding card cannot be ascertained by the system.
2	If ports on an active card fail, and the card is being protected, the indicator area within the button icon above the corresponding card will turn red. The button icon is called the *Output Protection button*. If a card's Port ALM indicator is red, the corresponding Output Protection button is red, and the Output Protection button above an in-service standby card is red, some output ports on the in-service active card have port alarms active on them, and the card is being protected by the indicated in-service standby card. Placing the mouse pointer over the Output Protection button and holding the mouse button down will cause indicators on the status panel of the MCA card to turn red, to indicate the specific ports on the in-service active card that are currently undergoing a port alarm condition.

B

Status Panel Indicator Descriptions

Tables BV, BW, BX, BY, BZ, and CA briefly explain the status indicators shown for each card in the NE:

Table BV explains the status indicators shown for the MIS card.

Table BV. MIS Card Status Indicators

Indicator	Description
Fail	When off, the card and power supply are functioning correctly. When red, the card or power supply has failed.
Critical	When off, no critical alarm exists in a card in the shelf. When red, one or more critical alarms exist in a card in the shelf.
Major	When off, no major alarm exists in a card in the shelf. When orange, one or more major alarms exist in a card in the shelf.
Minor	When off, no minor alarm exists in a card in the shelf. When yellow, one or more minor alarms exist in a card in the shelf.

Note: You can click an indicator when it is lit to display more information on the alarms related to it. Refer to the next step in this procedure for more information.

Table BW explains the status indicators shown for the Input card.

Table BW. Input Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally and the self-tests performed during the power-up have been successful. When red, self tests performed during power-up have failed, or the card has failed.
Ref (1, 2, 3, 4, StA, StB)	When green, the respective input is enabled and passed the error check. When red, the respective input failed the error check (high CRC, OOF, BPV, AIS, or LOS). When off, the respective input is not enabled.

B

Table BW. Input Card Status Indicators (cont'd)

Indicator	Description
Status (1, 2, 3, 4, StA, StB)	When green, the respective input has been selected as first priority. When yellow, the respective input has been rejected because it has exceeded the stability threshold. When off, the respective input has been accepted by majority vote and has not exceeded the stability threshold.
Src Active	When green, the card is on-line, providing DCD reference to the ST and Output cards. When off, the card is in standby mode.

Table BX explains the status indicators shown for the CLK card.

Table BX. CLK Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed.
Inp Tol	When off, the input frequency offset is within the pull in range. When red, the input frequency offset is greater than the pull-in range.
Drift	When off, the input reference rate of frequency change, as compared to the oscillator output is within the factory-set threshold. When yellow, the input reference rate of frequency change, as compared to the oscillator output, has exceeded the factory-set threshold.
Hldovr	When off, the system is not in a holdover state. When green, the card has warmed up, and neither input reference is present or not qualified. When red, all clock input signals are removed or they exceeded the pull-in range, causing the clock to go into holdover mode.
Lkd	When off, the card has not converged on the input reference. When green, the card has converged on the input reference.

B

Table BX. CLK Card Status Indicators (cont'd)

Indicator	Description
Active	When off, the card is not providing internal reference to the timing output cards. When green, the card is active and providing internal reference to the timing output cards.
OSC	When off, the oscillator is functioning properly. When red, the oscillator has failed, which also disables the card's output.

Note: When the CLK card fails, its output is disabled and a major alarm is generated.

Table BY explains the status indicators shown for the PSM card.

Table BY. PSM Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed, all ports have failed, or there is a loss of input reference to the card.
Ref (1, 2, 3, 4)	When off, the respective input is not enabled. When green, the respective input is enabled and has no E1 or T1 errors. When red, the respective input is enabled but has excessive E1 or T1 errors.
TOL (1, 2, 3, 4)	When off, the respective input is not enabled, or enabled within stability tolerance. When green, the respective input is enabled and out of stability tolerance.
ST	When off, no DCD shelf clock cards are active. When green, at least one DCD shelf clock card is active.
INP	When off, no clock cards or clock input cards are active. When green, at least one clock card or clock input card is active.

Table BZ explains the status indicators shown for the GTI card.

B

Table BZ. GTI Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed.
Output	When off, the GTI output is not active. When green, the GTI output is active. When red, the GTI output is disabled.
Input	*p/n 090-45100-11 or -12.* When green, the GPS input is present and valid. When red the GPS is powering up, or the GPS input is invalid. *p/n 090-45100-13 and -14.* When green, the GPS input is present and valid, when off, a GPS INVALID condition exists. When red, GPS INVALID has escalated to a minor or major alarm. *p/n 090-45100-15, -16, -17, and -18.* When green, the GPS input is present and valid. When off, a GPS INVALID minor alarm condition exists. When lit red, GPS INVALID has escalated to a major alarm.
Alarm	Indicates that GTI alarm conditions exist.

Note: Initially, this indicator is not lit until GTI LOCK, to indicate that the GTI output is not guaranteed to meet specification and is in AIS or squelch.

Table CA explains the status indicators shown for the TO cards.

Table CA. TO Card Status Indicators

Indicator	Description
Fail	When off, the card is functioning normally. When red, the card has failed, all ports have failed, or there is a loss of input reference to the card.
Port ALM	When off, the card is functioning correctly. When red, one to ten outputs have failed.
StA	When off, clock card A is not supplying the input reference for the card. When green, clock card A is supplying the input reference for the card. When red, the reference has been disqualified.

Table CA. TO Card Status Indicators (cont'd)

Indicator	Description
StB	When off, clock card B is not supplying the input reference for the card. When green, clock card B is supplying the input reference for the card. When red, the reference has been disqualified.
InpA	When off, the card is not receiving a reference signal from clock input A. When green, the card is receiving a reference signal from clock input A. When red, the reference has been disqualified.
InpB	When off, the card is not receiving a reference signal from clock input B. When green, the card is receiving a reference signal from clock input B. When red, the reference has been disqualified.
Text Box	Contains the signal type returned by the RTRV-EQPT TL1 Command.

Table CB explains the status indicators shown for the MCA card.

Table CB. MCA Card Status Indicators

Indicator	Description
FAIL	When off, the card is functioning normally. When red, the card has failed.
AUTO	When steady green, the card is in automatic switching mode. When flashing green, auto switch activity is occurring. When off, the card is not in automatic switching mode.
MAN	When steady green, the card is in manual switching mode. When flashing green, manual switch is in place. When off, the card is not in manual switching mode.

B

Table CB. MCA Card Status Indicators (cont'd)

Indicator	Description
PORT ALM (1 - 10)	When some, but not all, are red, the corresponding port or ports have failed on in-service active output card. The in-service active output card that applies is the one for which the Output Protection button ( ) in the Master Shelf or Expansion Shelf *X* Output Cards dialog box is being clicked. When all are red, either all ten ports on the corresponding in-service active card have failed, communication has been lost within the shelf, or intermittent communication with all output cards has been detected. When all are off, no port alarms are present, or no Output Protection button is being clicked.

B

Deleting or Adding Equipment or Ports

When equipment (cards) are physically removed from or added to the chassis of a DCD, the MIS card does not get automatically updated to reflect the change. Effecting the change in the NE's MIS card involves explicitly modifying the database on it. The procedures in this section explain how to add or delete equipment and ports on the NE's MIS card using TimePictra.

Delete Equipment or Ports from an NE

The following procedures can be used to delete equipment from the NE's resident database, as well as delete input or output ports from input or output card records in the NE's database.

Note: When deleting equipment or ports from the NE's MIS card, a specific sequence *must* be followed or an `Invalid Sequence` error will result and the operation will fail. As an example, to delete a card; you must first disable all ports on the card, then disable the card, then delete all ports on the card, then delete the card. The following general rules always apply when deleting equipment or ports:

- Before a card can be disabled, *all* ports on the card must be disabled.
- Before any port on a card can be deleted, the card must be disabled.
- Before a card can be deleted, *all* ports on the card must be deleted.
- After a card or any port is deleted, the NE must be remanaged by TimePictra.

Disable Ports On A Card

Procedure BV explains how to disable ports on a card.

B

Procedure BV. Disabling Ports on a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to disable ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration… shortcut icon, or choose Modify Configuration… from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be disabling input or output ports.
4	In the "Selected Card" field, choose the card from which the ports will be disabled.

Procedure BV. Disabling Ports on a Card (cont'd)

Step	Action
5	For the ports being disabled, choose No in the "Enabled" drop-down fields, then answer appropriately in the question and confirmation boxes that follow. *Note that if you will be disabling the card, all ports on the card must be disabled.*
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box. *Note:* A user can use PassThru and give the TL1 command that can disable all ports at once. The relevant TL1 command is RMV-PORT. Refer to the TL1 manual for exact syntax.

End of Procedure

Disable A Card

Note: **Before a card can be disabled, *all* ports on the card must be disabled (refer to the above procedure).**

Procedure BW explains how to disable a card.

Procedure BW. Disabling a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to disable the card.
2	Invoke the Pass-Thru Interface dialog box: *Synchronization Map* - Click the Pass Thru menu item in the TimePictra menu. *Launch Pad* - Click the Pass Thru... shortcut icon, or choose Pass Thru... from the PassThru menu.
3	Enter the following command into the "Command" field of the Pass-Thru Interface dialog box: `RMV-EQPT::card_aid:Ctag;` Where *card_aid* is the card which is being disabled, and *Ctag* is the correlation tag. *Note:* The *Ctag* can be any alphanumeric string from one to six characters in length. Refer to the TL1 manual for details.
4	Click the Send button to send the command, then upon indication of successful execution, click the Close button to close the Pass-Thru Interface dialog box.

End of Procedure

B

Delete Ports On A Card

Note: **Before any port on a card can be deleted, *all* ports on the card must first be disabled, then the card must be disabled (refer to the above procedures).**

Procedure BX explains how to delete ports on a card.

Procedure BX. Deleting Ports on a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to delete ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be deleting input or output ports.
4	In the "Selected Card" field, choose the card from which the ports will be deleted.
5	For each port being deleted, select the port number in the "Port" column, click the Delete Port button, then answer appropriately in the question and confirmation boxes that follow. *Note that if you will be deleting the card, all ports on the card must be deleted.*
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
7	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology....* in this manual. *Note:* A user can use PassThru and give the TL1 command that can delete all ports at once. The relevant TL1 command is DLP-PORT. Refer to the TL1 manual for exact syntax.
End of Procedure	

Delete A Card

Note: **Before a card can be deleted, *all* ports on the card must first be disabled, then the card must be disabled, then all ports on the card must be deleted (refer to the above procedures).**

Procedure BY explains how to delete a card.

B

Procedure BY. Deleting a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to delete the card.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration… shortcut icon, or choose Modify Configuration… from the Config menu.
3	Click the Equipment context-switch button.
4	Choose the radio button (LPR, Master, Expansion 1, 2, 3) as is appropriate for the rack where the card is to be deleted.
5	In the "CardType" field, choose the type of card to be deleted.
6	Select the card to be deleted in the "Card" column, click the Delete Card button, then answer appropriately in the question and confirmation boxes that appear. *Note:* One such box that appears states that the user should re-manage the NE. That step is stated below.
7	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
8	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology….* in this manual.
End of Procedure	

B

Add Equipment or Ports to an NE

The following procedures can be used to add equipment to the NE's resident database, as well as add input or output ports to input or output card records in the NE's database.

Note: A card has to be added physically in the NE before using TimePictra to populate and change the card's configuration on the MIS card.

Add a Card

Procedure BZ explains how to add a card.

Procedure BZ. Adding a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to add a card.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the Equipment context-switch button.
4	Choose the radio button (LPR, Master, Expansion 1, 2, 3) as is appropriate for the rack where the card is to be added.
5	In the "CardType" field, choose the type of card to be added.
6	Click the Add Card button, then click the OK button in the information box that appears.
7	In the "Slot" drop-down field of the Add Card dialog box that appears, choose the slot that the added card is installed in, click OK, then answer appropriately in the question and confirmation boxes that follow. *Note:* One such box that appears states that the user should re-manage the NE. That step is stated below.
8	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
9	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology....* in this manual.
End of Procedure	

B

Add Ports to a Card

Note: **When a card is added to the NE's resident database, a default configuration for ports and other parameters is entered for the card. The following procedure can be used to add ports that do not exist in the default configuration.**

Procedure CA explains how to add ports to a card.

Procedure CA. Adding Ports to a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to add ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be adding input or output ports.
4	In the "Selected Card" field, choose the card to which the ports will be added.
5	For each port being added, select the port number in the "Port" column, click the Add Port button, click OK in the Add Port dialog box, then answer appropriately in the question and confirmation boxes that follow.
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.
7	Remanage the NE. Refer to the procedure entitled *Remanage a Network Element* in either chapter entitled *Network Topology....* in this manual.
	End of Procedure

Restore a Card to Service

Note: **When a card is first added to the NE's database, it is in the maintenance state. Ports on a card can be enabled only when the card is not in the maintenance state. This procedure explains how to restore a card to service from the maintenance state.**

Procedure CB explains how to restore a card to service.

B

Procedure CB. Restoring a Card to Service

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to restore the card.
2	Invoke the Pass-Thru Interface dialog box: *Synchronization Map* - Click the Pass Thru menu item in the TimePictra menu. *Launch Pad* - Click the Pass Thru... shortcut icon, or choose Pass Thru... from the PassThru menu.
3	Enter the following command into the "Command" field of the Pass-Thru Interface dialog box: `RST-EQPT::card_aid:Ctag;` Where *card_aid* is the card which is being restored to service, and *Ctag* is the correlation tag. *Note:* The *Ctag* can be any alphanumeric string from one to six characters in length.
4	Click the Send button to send the command, then upon indication of successful execution, click the Close button to close the Pass-Thru Interface dialog box.
End of Procedure	

Enable Ports on a Card

Procedure CC explains how to enable ports on a card.

Procedure CC. Enabling Ports on a Card

Step	Action
Note: Users of the Administrator and Security classes can perform this procedure.	
1	In the synchronization network map or Launch Pad, select the NE in which you want to enable ports.
2	Invoke the Modify Configuration dialog box: *Synchronization Map* - Click the Modify menu item from the Configuration menu. The Configuration menu is part of the TimePictra menu. *Launch Pad* - Click the Modify Configuration... shortcut icon, or choose Modify Configuration... from the Config menu.
3	Click the appropriate context-switch button (either Inputs or Outputs) depending on whether you will be enabling input or output ports.
4	In the "Selected Card" field, choose the card from which the ports will be enabled.

B

Procedure CC. Enabling Ports on a Card (cont'd)

Step	Action
5	For the ports being enabled, choose Yes in the "Enabled" drop-down fields, then answer appropriately in the question and confirmation boxes that follow.
6	Click the Close button, then OK in the question box that follows to close the Modify Configuration dialog box.

End of Procedure

B

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the Symmetricom Digital Clock Distributor versions 5.04.02, 5.05.02, and 5.05.04. The sub-sections within this section reflect the seven setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- NE (Network Elements) Settings
- Input/PSM settings
- Threshold settings
- Output settings
- Equipment settings
- Event settings
- Inventory Settings

Note: Functionally, the DCD 5.05.02/5.05.04 NE has more features than the DCD 5.04.02 NE, however, only functionality that is common to both NEs is represented in the View Configuration and Modify Configuration forms.

The figure below shows a portion of the Modify Configuration dialog box. The View Configuration dialog box is essentially identical, except no NE settings can be modified from within it.

Figure 61. Modify Configuration

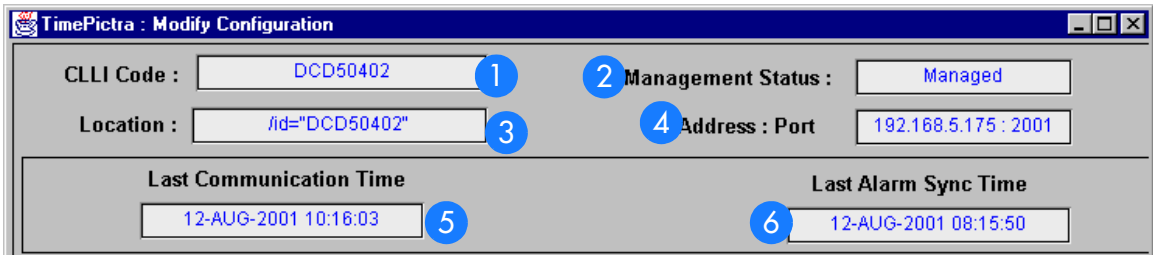


Table CC. Configuration:Modify Dialog Box Description

Item	Description
1	The name of the unit given at the time the network element was created on TimePictra.
2	The current management status of the unit.

B

Table CC. Configuration:Modify Dialog Box Description

Item	Description
3	The path to the domain under which the network element resides. In the example above, the network element is located under the Root domain.
4	The IP address and port that TimePictra is using to communicate with the Network Element.
5	This is the last time that the TimePictra machine communicated with the network element.
6	The last time the alarms on the network element and those stored in TimePictra's database were synchronized.

The following sections will cover the seven different configuration submenus for the DCD 5.04.02, DCD 5.05.02, and DCD 5.05.04, and will include where appropriate...

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category.

Note: If a record within an action panel appears with a blank “Port,” “Slot,” or “Card” specifier, no entry exists in the NE’s resident database for the port, slot, or card. The information shown in the record is default data for the record.

The software communicates with NEs via a network connection. there are several networking settings that are configurable in this dialog box. The figure below shows the layout of the action panel for Network Element settings and Table AZ gives a brief description of each setting.

B

NE (Network Element)

Figure 62. Network Element

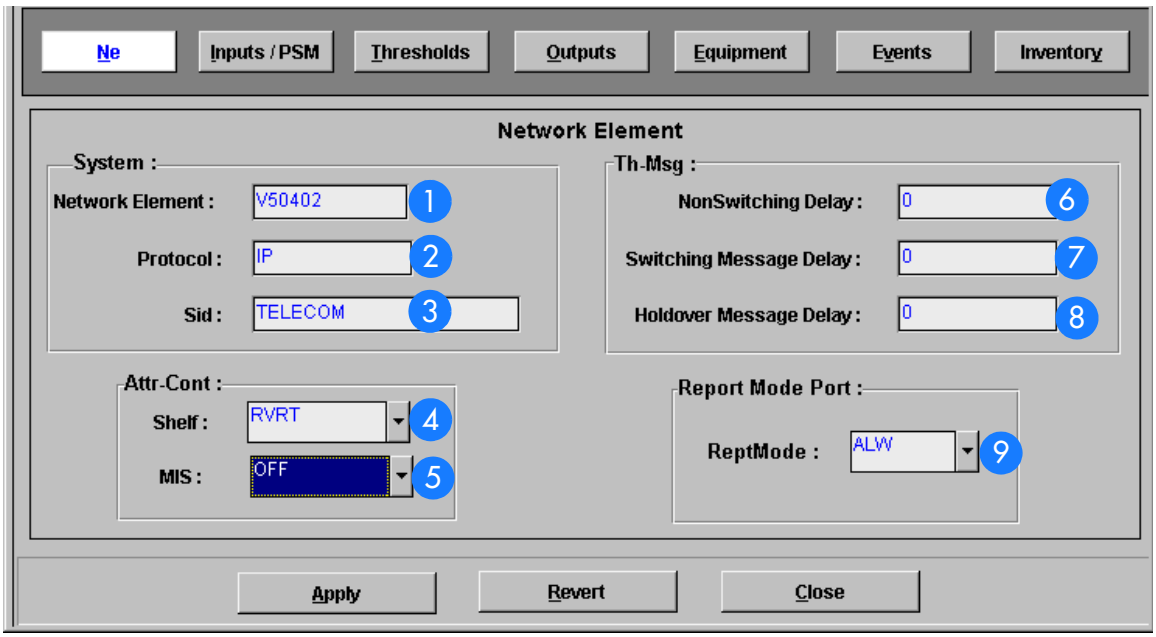


Table CD. Network Element Dialog Box Description

Item	Description
1	The type of network element.
2	The communication protocol TimePictra is using to communicate with the network element.
3	The name of the network element, as stored on the MIS card.
4	Put the shelf into revertive or nonrevertive mode.
5	The SSM mode of the shelf.
6	The amount of time (ms) from a signal quality SSM change (following the persistence delay and which does not require a switch or rearrangement) at an input until the new SSM is sent to the timing output cards (in 100 ms steps).
7	The amount of time (ms) from a signal quality SSM change (following the persistence delay and which requires a switch or rearrangement) at an input until the new SSM is sent to the timing output cards (in 100 ms steps).
8	The amount of time from when the clocks go into holdover until the holdover SSM is sent to the timing output cards (in 1 second steps).

B

Table CD. Network Element Dialog Box Description

Item	Description
9	Sets the message type (REPT-ALM-PORT or REPT-ALM-EQPT) used to report autonomous port-alarm messages.

B

Figure 63. Action Panel - Input Cards

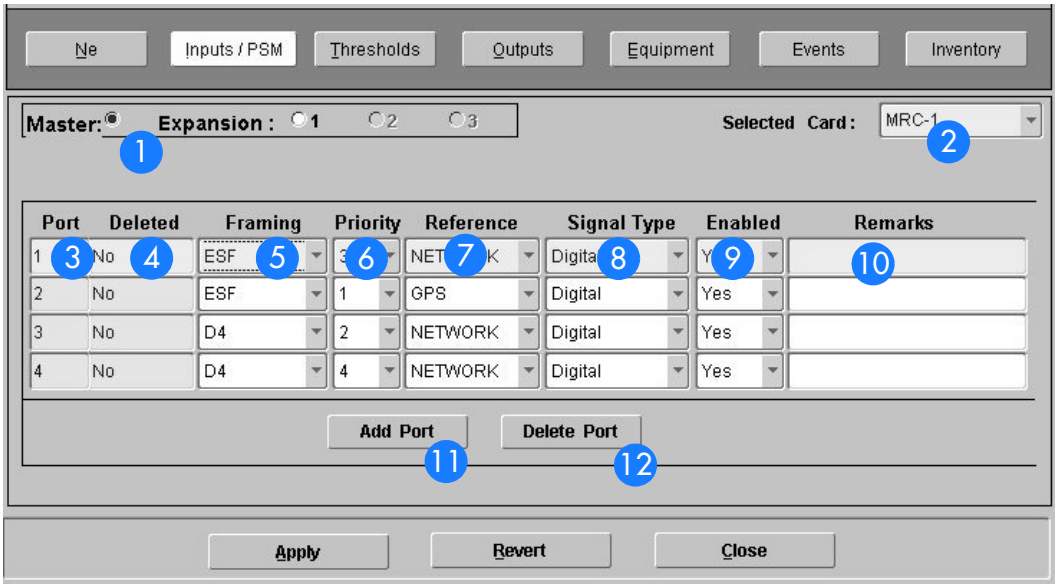
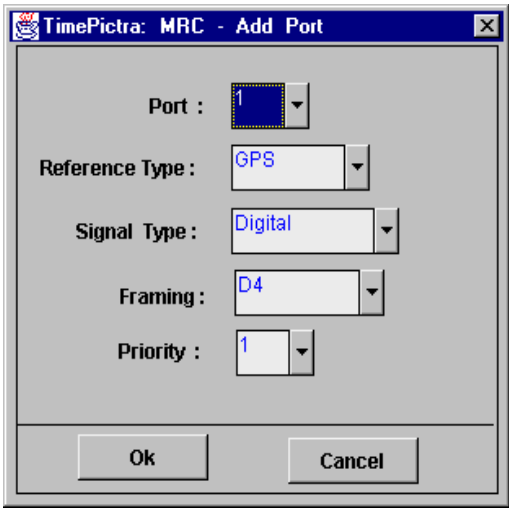


Table CE. Network Element Dialog Box Description

Item	Description
1	Use these buttons to access the equipment on different racks.
2	A drop-down list of the available input or performance cards.
3	A non-editable field, displaying the ports on the card.
4	A non-editable field noting whether the port was deleted or not. If a port was deleted after TimePictra had managed the unit, then TP will save the port in the database in order to keep any remarks that might have been associated with the port. If the port was deleted before the unit was managed, then TP would never have known that it existed and it will not be listed in this form. In this example, port four of this MRC card had been deleted before the unit was initially managed.
5	The framing of the input card. The drop-down box lists all possible values regardless of the card type (E1 or T1), so selecting CRC4 for a T1 card will fail.
6	The priority of each input port. If a priority for one port is changed to a value that already exists for another port, the DCD will simply swap their values. This is accurately represented on the form.
7	The type of reference for that port. Available values are Network, GPS, Loran, or Network.
8	Delineates between analog or digital signal types.

B

Table CE. Network Element Dialog Box Description

Item	Description
9	The service status of a particular port. Selecting "No" is the equivalent of running the RMV-PORT TL1 Command, and selecting "Yes" is the equivalent of running the RST-PORT TL1 command for that port.
10	A field for the user to enter and save any remarks they might have about that particular port.
11	Clicking this button will display another window, asking for any port-specific information the user wishes to provide about the port they're adding. This window is shown below. This is equivalent to the ENT-PORT TL1 command. 
12	The Delete Port button will attempt to delete whichever port is selected at the time the button was clicked. This is equivalent to the DLT-PORT TL1 command.

B

Figure 64. Thresholds

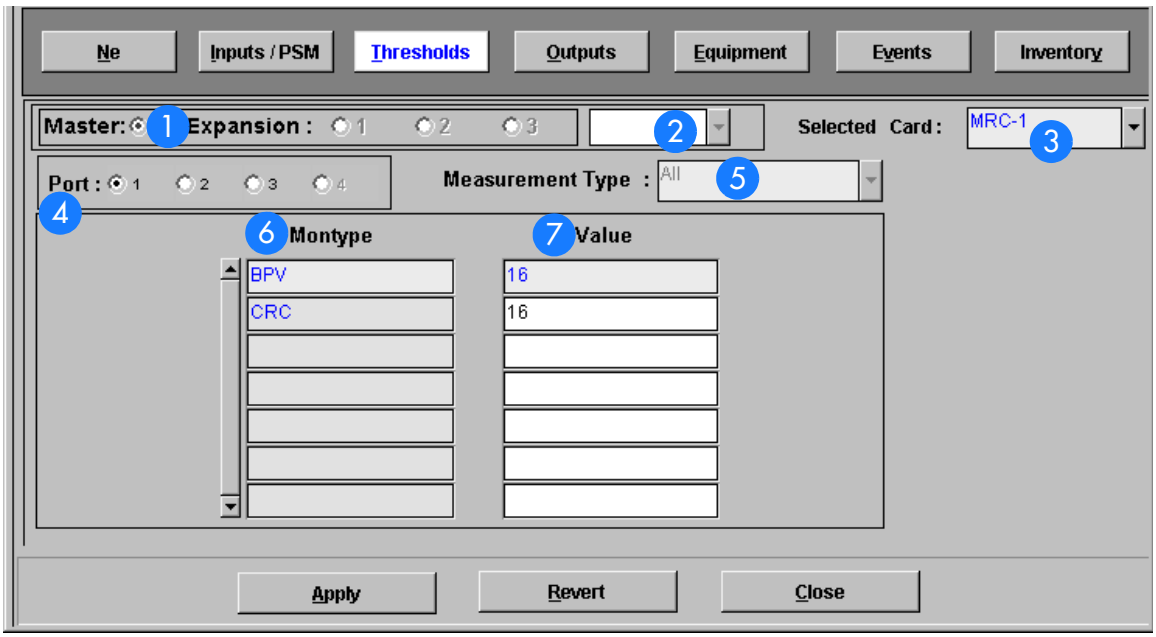


Table CF. Thresholds Dialog Box Description

Item	Description
1	Use these buttons to access the equipment on different racks.
2	The drop-down box just to the right of the Expansion radio buttons handles selecting PSM cards. If PSM is selected in the Selected Cards drop-down box and there are performance cards on that rack, then they can be selected from this drop-down box.
3	A drop-down list of the available input or performance cards.
4	These radio buttons select the port for which measurement information will be displayed.
5	This drop-down box helps filter the type of measurement shown.
6	Each different measurement parameter is displayed here.
7	The threshold value for that montype.

B

Output Settings

Figure 65. Output Settings

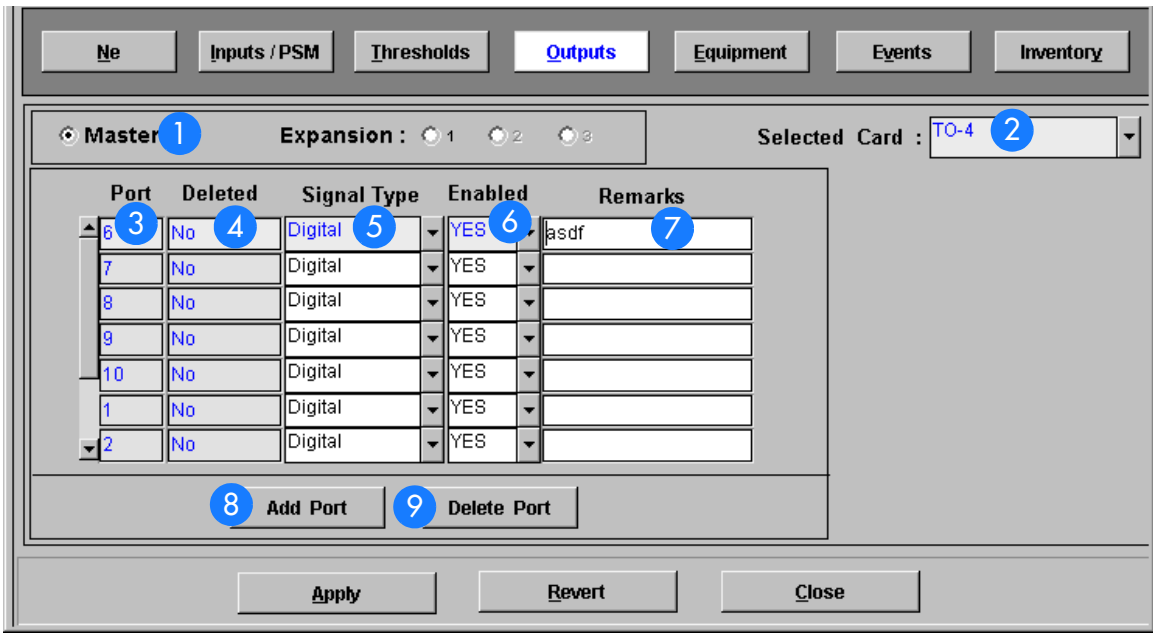
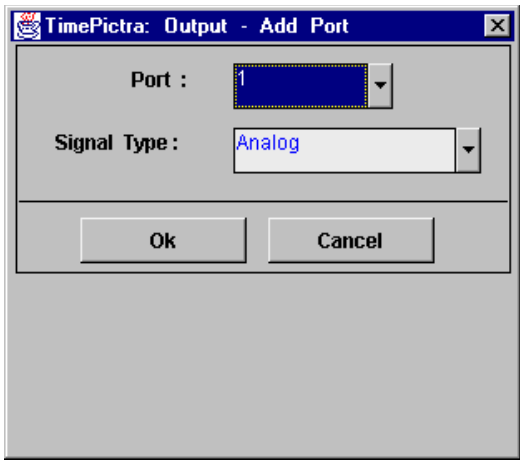


Table CG. Outputs Dialog Box Description

Item	Description
1	Use these buttons to access the equipment on different racks.
2	A drop-down list of the available output cards.
3	The port number of the selected output card.
4	A non-editable field noting whether the port was deleted or not. If a port was deleted after TimePictra had managed the unit, then TP will save the port in the database in order to keep any remarks that might have been associated with the port. If the port was deleted before the unit was managed, then TP would never have known that it existed and it will not be listed in this form.
5	Delineates between analog or digital signal types.
6	The service status of a particular port. Selecting "No" is the equivalent of running the RMV-PORT TL1 Command, and selecting "Yes" is the equivalent of running the RST-PORT TL1 command for that port.
7	A field for the user to enter and save any remarks they might have about that particular port.

B

Table CG. Outputs Dialog Box Description

Item	Description
8	Clicking this button will bring up another window, asking for any port-specific information the user wishes to provide about the port they're adding. This window is shown below. This is equivalent to the ENT-PORT TL1 command. 
9	The Delete Port button will attempt to delete whichever port is selected at the time the button was clicked. This is equivalent to the DLT-PORT TL1 command.

B

Equipment Settings

The Equipment submenu has radio buttons for different types of equipment, from comm port configuration to LPR shelf information, so there will be several screen shots to cover these features in detail.

LPR Shelf Information

Figure 66. LPR Shelf Information Settings

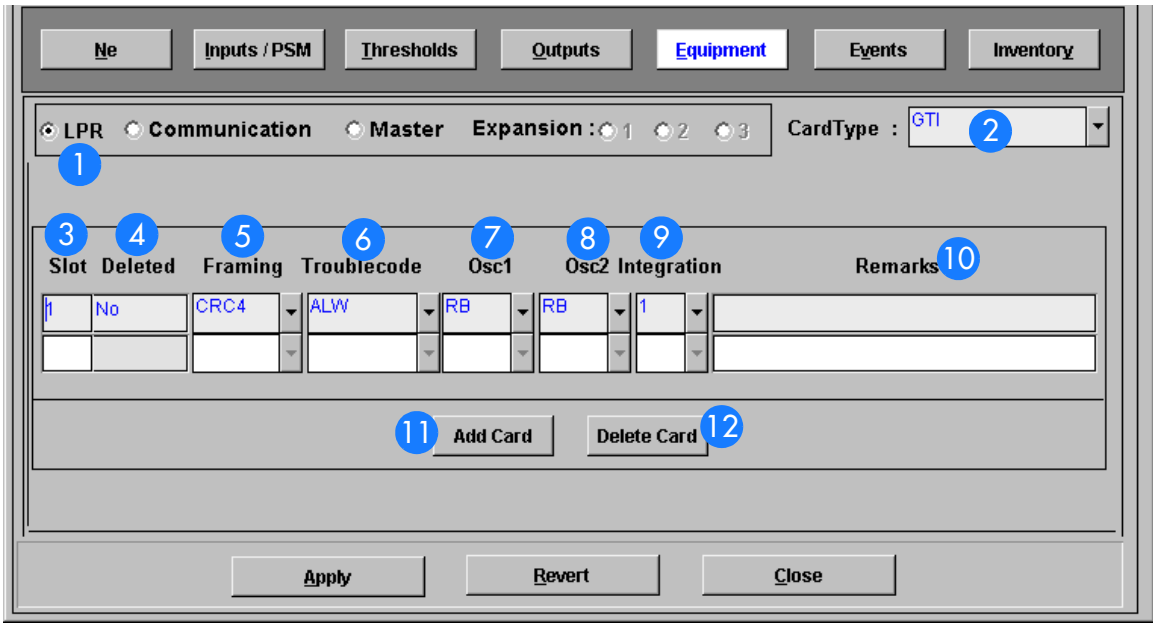
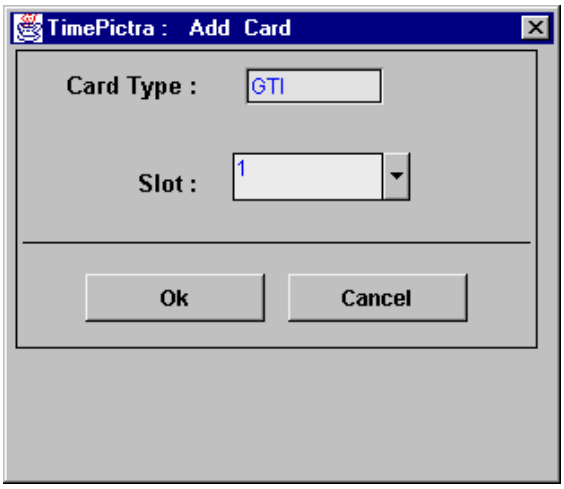


Table CH. PR Shelf Information Description

Item	Description
1	These radio buttons show specific equipment configuration information for each type of equipment listed.
2	The type of card in the LPR shelf.
3	The slot that the card resides in.
4	A non-editable field noting whether the card was deleted or not. If a card was deleted after TimePictra had managed the unit, then TP will save the card in the database in order to keep any remarks that might have been associated with the port. If the card was deleted before the unit was managed, then TP would never have known that it existed and it will not be listed in this form.
5	The framing type for that card.

Table CH. PR Shelf Information Description

Item	Description
6	The action to take when the card has a major alarm.
7	The oscillator type of OSC A.
8	The oscillator type of OSC B.
9	The integration parameter setting.
10	A field for the user to enter and save any remarks they might have about that particular card.
11	Clicking this button will bring up another window, asking for any card-specific information the user wishes to provide about the card they're adding. This window is shown below. This is equivalent to the ENT-EQPT TL1 command. 
12	The Delete Card button will attempt to delete whichever card is selected at the time the button was clicked. This is equivalent to the DLT-EQPT TL1 command.

B

Figure 67. Communication Settings

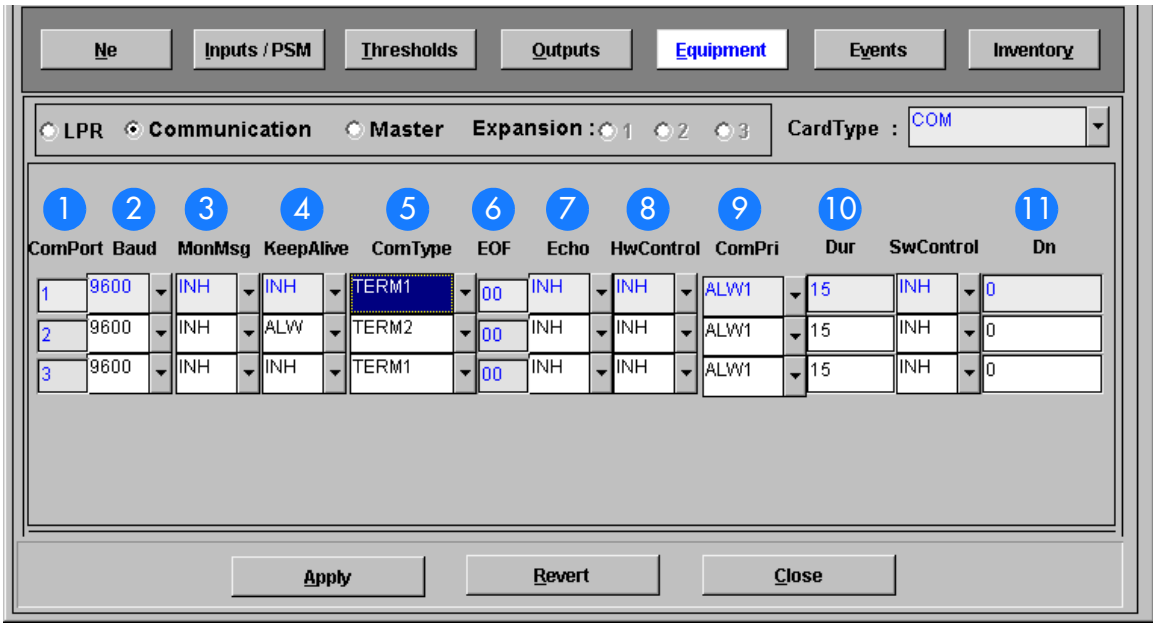


Table CI. Communication Description

Item	Description
1	The three communication ports.
2	The baud rate at which each port is running.
3	Enable or disable a communication port from viewing messages from other ports.
4	Enable or disable a port from autonomously outputting a COMPLD message every fifteen to twenty minutes
5	Predefined communication parameters for the device hooked up to the comm port.
6	This hexadecimal number specifies one character as an additional end-of-text identifier.
7	Toggles the local echo on or off.
8	Toggles hwcontrol from external equipment.
9	Communication priority settings.

B

Table CI. Communication Description

Item	Description
10	The duration in minutes after which a user will be logged off if there is no activity.
11	Specifies the remote PAD address.

Master/Expansion

There are several card types that can be configured for this menu. Starting below, the input cards. Each card shares the following parameters:

Figure 68. Master/Expansion Settings

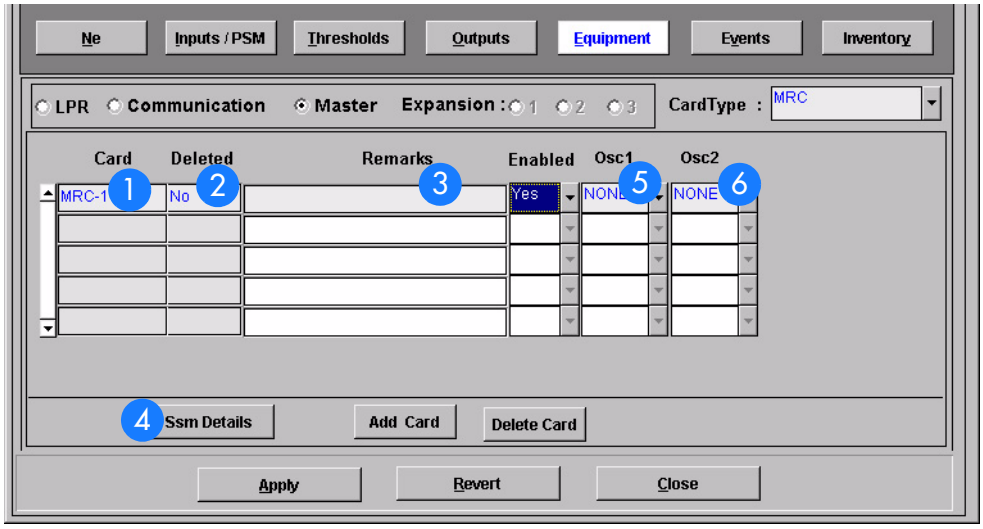
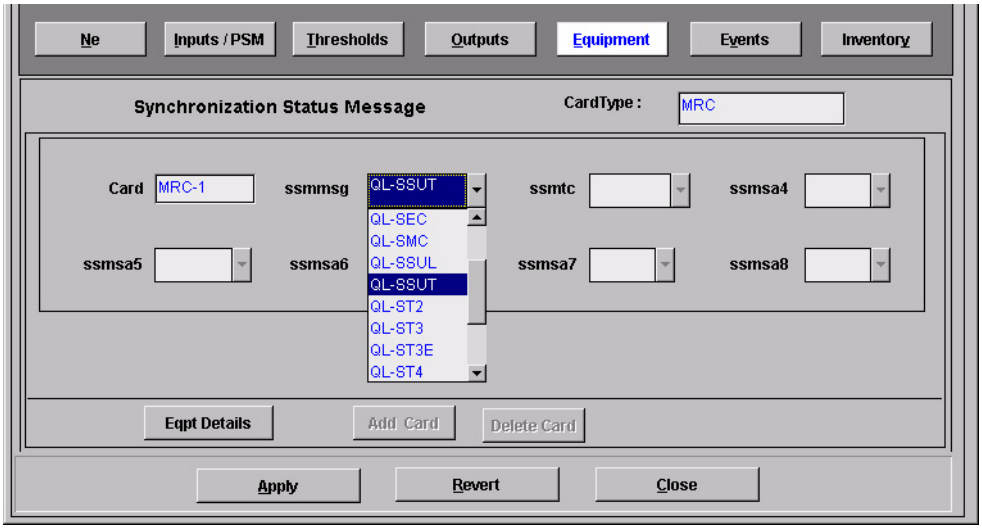


Table CJ. Master/Expansion Description

Item	Description
1	The type and location of the card.
2	A non-editable field noting whether the card was deleted or not. If a card was deleted after TimePictra had managed the unit, then TP will save the card in the database in order to keep any remarks that might have been associated with the port. If the card was deleted before the unit was managed, then TP would never have known that it existed and it will not be listed in this form.
3	A field for the user to enter and save any remarks they might have about that particular card.

B

Table CJ. Master/Expansion Description

Item	Description
4	This figure illustrates the configurable SSM values for the selected card. Click the Eqpt Details button to return to the main equipment sub-menu. 
5	The clock type of oscillator 1.
6	The clock type of oscillator 2.

B

Figure 69. Output Cards Information Settings

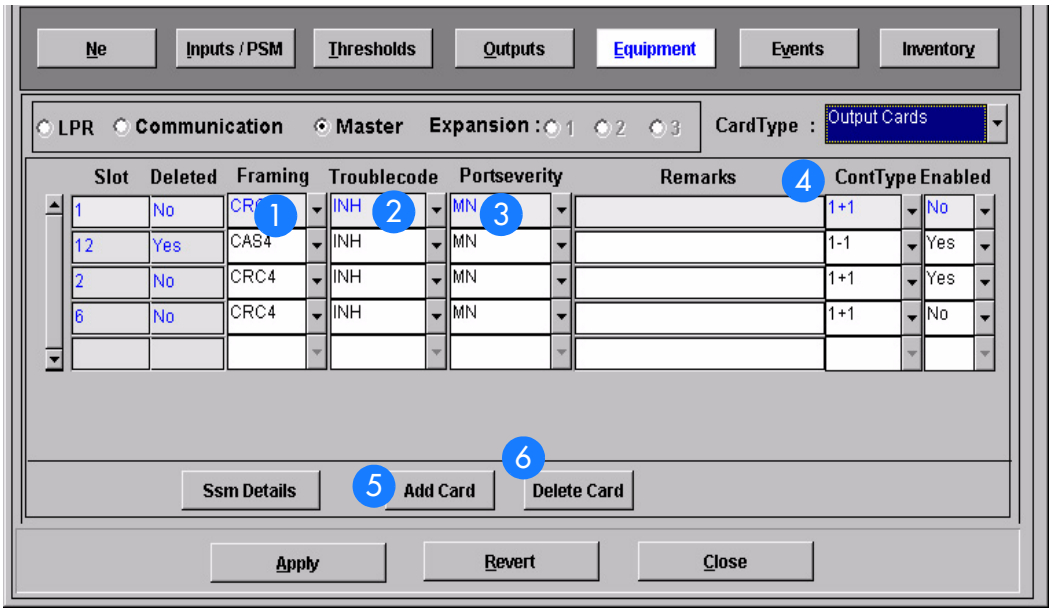
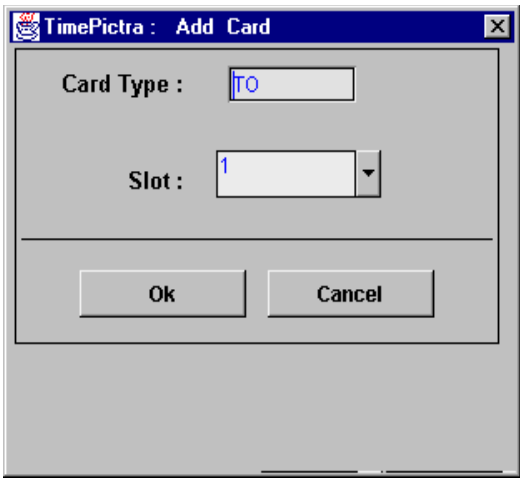


Table CK. Output Card Information Description

Item	Description
1	The framing of the output signal.
2	Toggles the action to take on card failure.
3	The severity of the alarm caused by port failure.
4	The type of output protection to use.

B

Table CK. Output Card Information Description

Item	Description
5	Clicking this button will bring up another window, asking for any card-specific information the user wishes to provide about the card they're adding. This window is shown above. This is equivalent to the ENT-EQPT TL1 command. 
6	The Delete Card button will attempt to delete whichever card is selected at the time the button was clicked. This is equivalent to the DLT-EQPT TL1 command.

B

Clock Cards

Figure 70. Clock Cards Information Settings

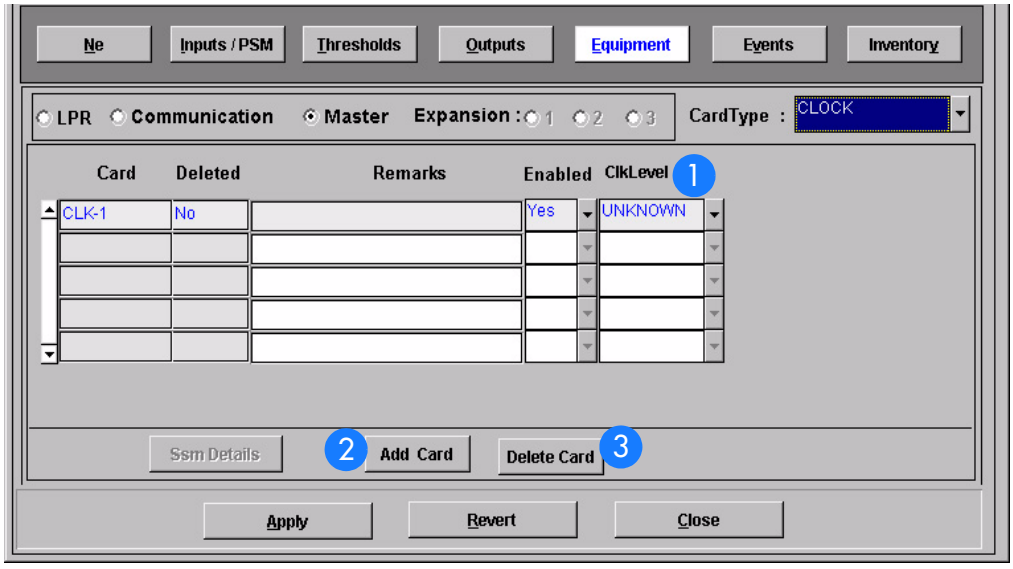
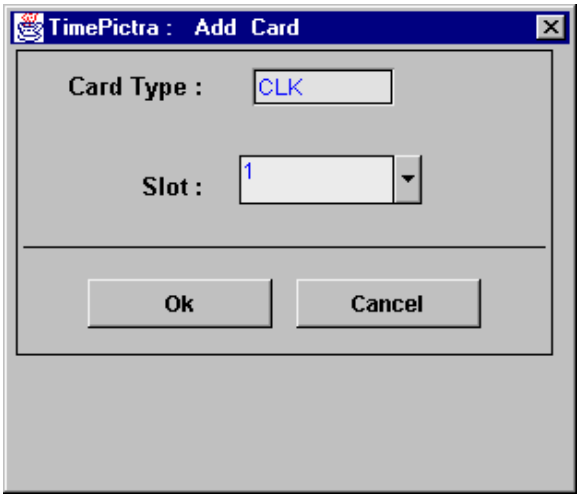


Table CL. Clock Card Information Description

Item	Description
1	The stratum level of the clock.
2	Clicking this button will bring up another window, asking for any card-specific information the user wishes to provide about the card they're adding. This window is shown below. This is equivalent to the ENT-EQPT TL1 command. 
3	The Delete Card button will attempt to delete whichever card is selected at the time the button was clicked. This is equivalent to the DLT-EQPT TL1 command.

B

Event Settings

Figure 71. Event Settings Information

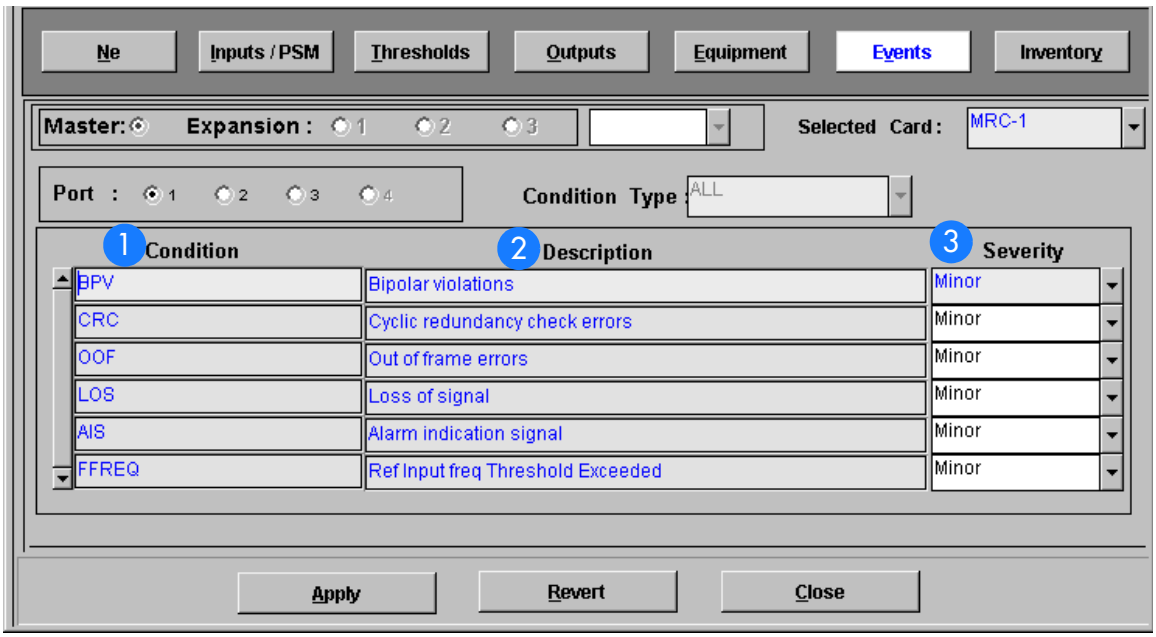


Table CM. Event Settings Information Description

Item	Description
1	A listing of the available thresholds for performance measurement.
2	A brief description of each of the thresholds.
3	The severity of the alarm generated by the condition.

B

Inventory Settings

In order to handle non-standard inventory and to retrieve information such as hardware and firmware revision information, the following form has been integrated into the TimePictra software.

Figure 72. Inventory Settings Information

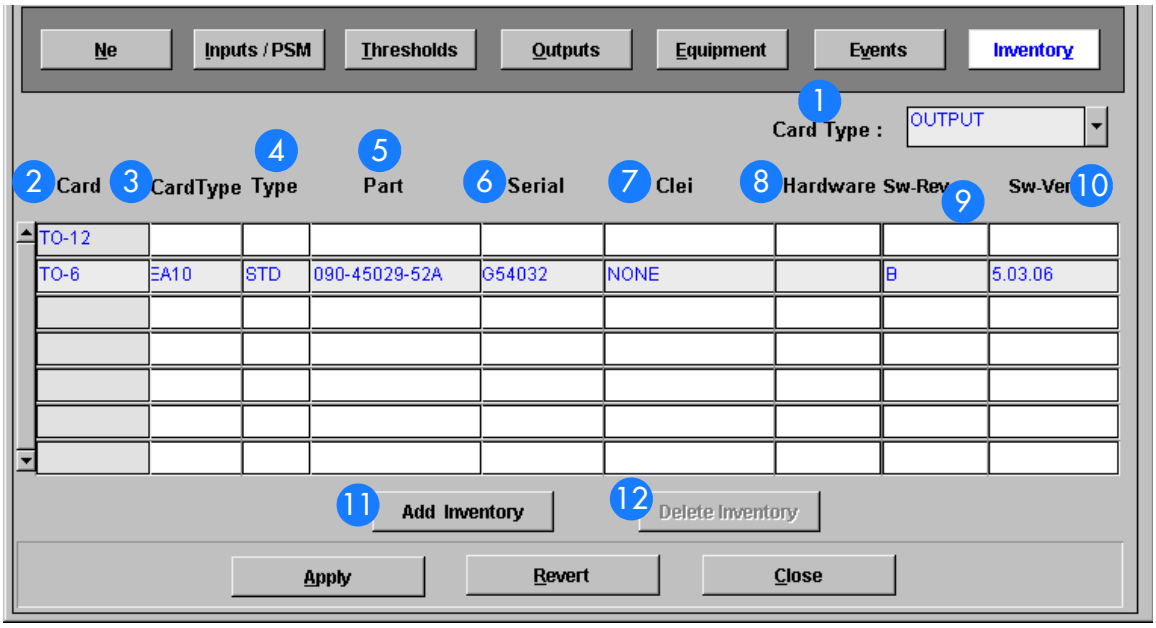
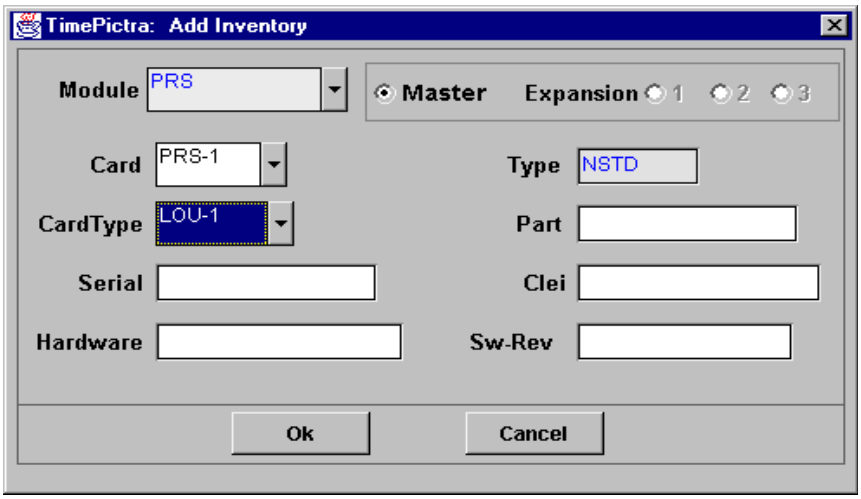


Table CN. Inventory Settings Information Description

Item	Description
1	The type of card inventory information listed in the table.
2	The AID of each card listed.
3	The specific card type of each card listed.
4	Specifies standard (STD) or non-standard (NSTD) inventory.
5	The part number of the card.
6	The serial number of the card.
7	The CLEI of the card.

B

Table CN. Inventory Settings Information Description

Item	Description
8	The hardware revision of the card.
9	The software revision of the card.
10	The firmware version on the card.
11	Clicking this button brings up a menu with lists of non-standard cards to choose from, and the user is allowed to enter any card-specific information they'd normally have to use ENT-INVENTORY for. A screen capture follows. 
12	The Delete Inventory button will attempt to delete whichever card is selected at the time the button was clicked. This is equivalent to the DLT-INVENTORY TL1 command.

B

NE Information - PRR10

This chapter provides information and procedures that are specific to the PRR10 Network Element.

App. C

Network Element Status

The software contains a dialog box that summarizes the status of the selected PRR10 NE. This dialog box, the Network Element Status dialog box, displays a summary of the status of the various boards of the selected NE. The dialog box contains panel displays which show the state of some of the indicators on the card's front panels. Figure 73 and Table CO briefly explain the Network Element Status dialog box

Figure 73. Network Element Status Dialog Box

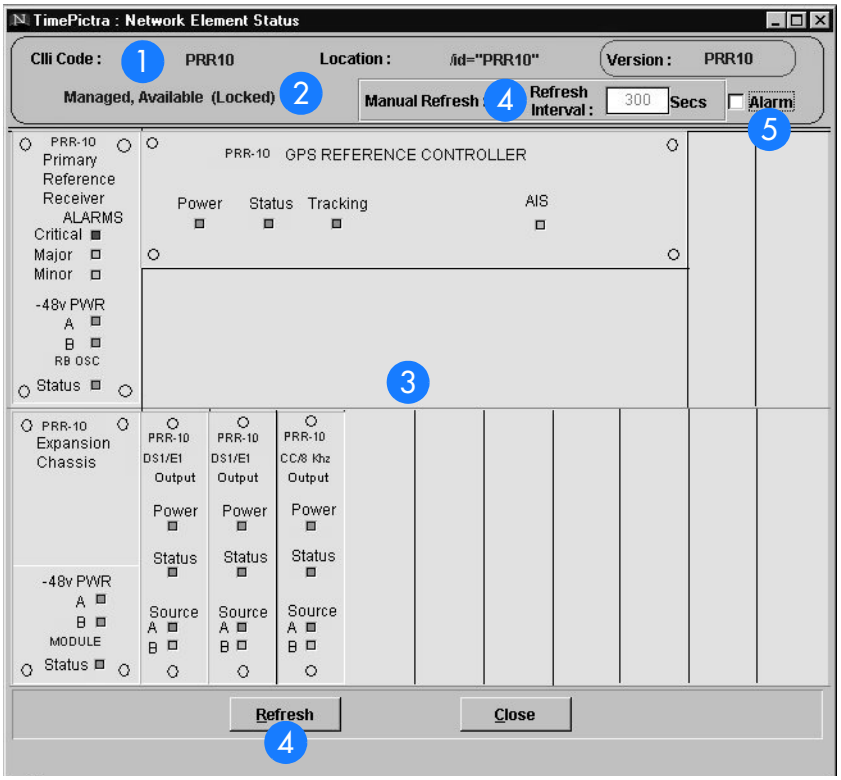


Table CO. Network Element Status Box Description

Item	Description
1	The CLLI code, Location, and Version of the NE to which the status display applies is shown on this line. These fields cannot be edited; they reflect the information for the NE that is selected in the target list area of the Launch Pad when the dialog box is called up.
2	This area reports whether or not the selected NE is currently Managed, Available, etc., and whether or not it has been Locked, as by another session.

C

Table CO. Network Element Status Box Description (cont'd)

Item	Description
3	This area shows the current status of the various equipment cards in the NE via status indicators, which simulate some of the LED indicators on the cards. If any of the equipment cards are not present, the corresponding slot in this area will be blank. *Note:* If the selected NE is unavailable, this area will be blank and the message "`----- Status Unknown -----`" will be displayed.
4	The refresh settings determine the frequency at which the information in the status display is automatically updated. If the "Auto-refresh" check-box is selected, the information in the status display will be automatically refreshed at the interval specified in "Refresh Interval" entry field provided (the default refresh interval is 5 minutes; the minimum refresh interval is 30 seconds). If the "Auto-Refresh" check-box is not selected, the status information will not be automatically refreshed. The display can be manually refreshed at any time, however, by clicking the Refresh button.
5	Selecting the Alarm check-box invokes an instance of the Alarm Viewer dialog box which contains only the alarms that are currently active in the NE.

C

Status Panel Indicator Descriptions

Tables CP, CQ, and CR briefly explain the status indicators shown for each card in the NE:

Table CP explains the status indicators shown for the GPS Reference Controller.

Table CP. GPS Reference Controller Status Indicators

Indicator	Description
Power	When green, the module is receiving power.
Tracking	When green, the Loran-C or GPS engine is tracking. When yellow, the Loran-C or GPS engine is not tracking.
Status	When green, the module is operating properly. When yellow, a hardware or firmware fault exists with the module.
AIS	When off, the output is in normal operation.

Table CQ explains the status indicators shown for the Primary Reference Receiver.

Table CQ. Primary Reference Receiver Status Indicators

Indicator	Description
Critical	When off, no critical alarms exist. When red, a critical alarm exists.
Major	When off, no major alarms exist. When red, a major alarm exists.
Minor	When off, no minor alarms exist. When yellow, a minor alarm exists.
A (48v PWR)	When off, no power is present on the A bus. When green, -48 Vdc is present on the A bus.
B (48v PWR)	When off, no power is present on the B bus. When green, -48 Vdc is present on the B bus.
Status (Quartz OSC)	When on, the DC to DC converters are operating properly. When off, a DC to DC converter fault exists.
Status (Rb OSC)	When on, the Rb internal circuits are locked, and the DC to DC converters are operating properly. When off, a Rb or DC to DC converter fault exists.

Table CR explains the status indicators shown for the Output modules.

Table CR. Output Module Status Indicators

Indicator	Description
Power	When off, the module is not receiving power. When on, the module is receiving power.
Status	When green, the module is in normal operation. When yellow, the module has an input or output failure.
A (Source)	When green, the input to the module is present and selected. When yellow, the input to the module is faulted. When off, the input to the module is not present or not selected.
B (Source)	When green, the input to the module is present and selected. When yellow, the input to the module is faulted. When off, the input to the module is not present or not selected.

C

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the PRR10 Primary Reference Source. The sub-sections within this section reflect the five setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- Network Element settings
- Output Module settings
- Reference Controller settings
- Oscillator Module settings
- Alarm Module settings

Each sub-section includes the following:

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL/1 command or parameter code (or both) within the manufacturer's documentation where more detailed information on the particular setting can be found.

C

Network Element Settings

There are several network element-related settings that are configurable in this dialog box. Figure 74 shows the layout of the action panel for Network Element settings, and Table CS gives a brief description of each setting. The COMMAND column in the table provides a reference point in the PRR10 documentation where more detailed information can be found.

Figure 74. Action Panel - Network Element Settings

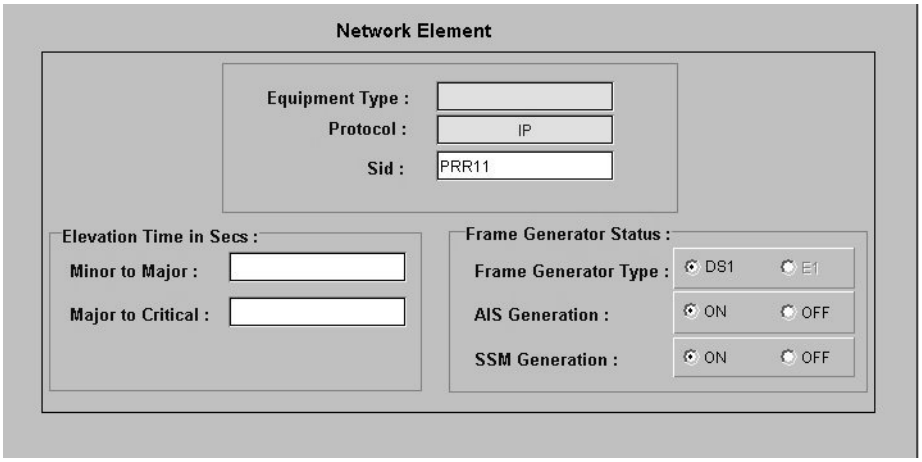


Table CS. Network Element Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
AIS Generation	PRR10	Indicates whether or not AIS generation is on or off.	RTRV-PRMTR-FG SET-PRMTR-FG
Equipment Type	PRR10	The network element type.	RTRV-NETYPE
Frame Generator Type	PRR10	The frame generator type.	RTRV-PRMTR-FG
Major to Critical	PRR10	Indicates the major to critical alarm elevation time.	RTRV-PRMTR-ELTIME SET-PRMTR-ELTIME
Minor to Major	PRR10	Indicates the major to critical alarm elevation time.	RTRV-PRMTR-ELTIME SET-PRMTR-ELTIME
Protocol	PRR10	The interface with the NE.	*None.*
Sid	PRR10	The name of the NE.	RTRV-NAME SET-NAME
SSM Generation	PRR10	Indicates whether SSM generation is on or off.	RTRV-PRMTR-FG SET-PRMTR-FG

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the PRR10 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

C

Output Module Settings

There are several output module-related settings that are configurable in this dialog box. Figure 75 shows the layout of the action panel for Output Module settings, and Table CT gives a brief description of each setting. The COMMAND column in the table provides a reference point in the PRR10 documentation where more detailed information can be found.

Figure 75. Action Panel - Output Module Settings

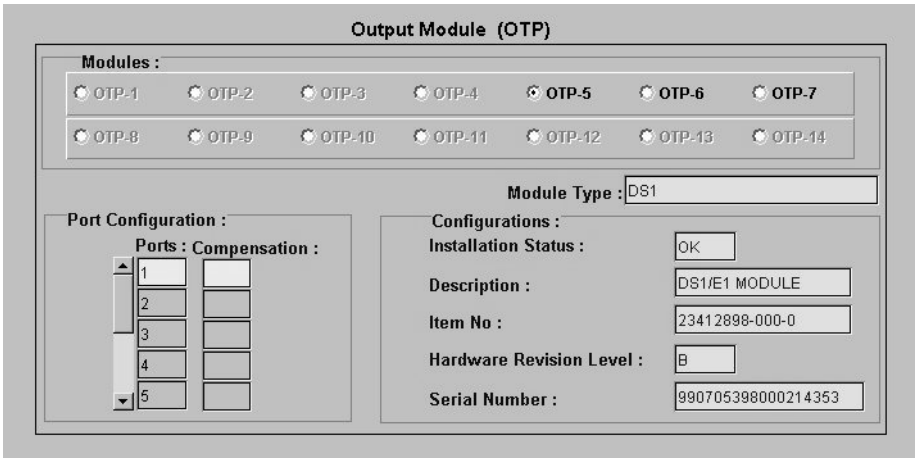


Table CT. Output Module Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
		Module Selector	
Modules	PRR10	Selects which Output module to view the configuration for.	*None.*
		Module-Specific Settings[b]	
Compensation	PRR10	The line compensation settings.	RTRV-PRMTR-COMP SET-PRMTR-COMP
Description	PRR10	A description of the module.	RTRV-CONF
Hardware Revision Level	PRR10	The hardware revision level.	RTRV-CONF
Installation Status	PRR10	The installation status.	RTRV-CONF
Item No.	PRR10	The module item number.	RTRV-CONF
Module Type	PRR10	The type of module.	RTRV-CONF
Ports	PRR10	The port being compensated.	RTRV-PRMTR-COMP
Serial Number	PRR10	The serial number of the card.	RTRV-CONF

C

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the PRR10 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Module-Specific Settings* apply specifically to the Output module specified by the Module Selector.

C

Reference Controller Settings

There are several reference controller-related settings that are configurable in this dialog box. Figure 76 shows the layout of the action panel for Reference Controller settings, and Table CU gives a brief description of each setting. The COMMAND column in the table provides a reference point in the PRR10 documentation where more detailed information can be found.

Figure 76. Action Panel - Reference Controller Settings

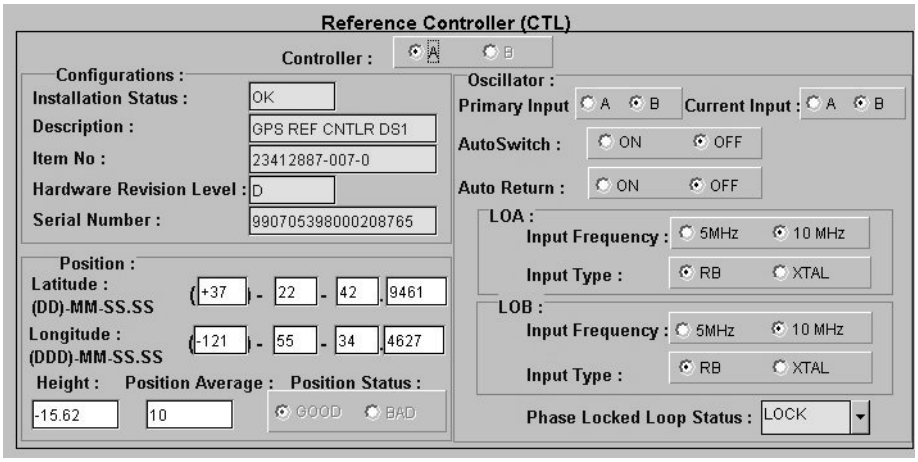


Table CU. Reference Controller Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
		Controller Selector	
Controller	PRR10	Selects which reference controller to view the configuration for.	RTRV-CONF
		Controller-Specific Settings[b]	
Auto Return	PRR10	The status of auto return.	RTRV-PRMTR-OSC
Auto Switch	PRR10	The status of auto switch.	RTRV-PRMTR-OSC
Current Input	PRR10	The oscillator that is currently being used as input.	RTRV-PRMTR-OSC
Description	PRR10	A description of the module.	RTRV-CONF
Hardware Revision Level	PRR10	The hardware revision of the unit.	RTRV-CONF
Height	PRR10	The height above the geoid.	RTRV-PRMTR-POS SET-PRMTR-POS
Input Frequency - LOA	PRR10	The frequency of input A.	RTRV-PRMTR-OSC SET-PRMTR-OSC

Table CU. Reference Controller Settings (cont'd)

Setting/Button	NE	Description	COMMAND (parameter)[a]
Input Frequency - LOB	PRR10	The frequency of input B.	RTRV-PRMTR-OSC SET-PRMTR-OSC
Input Type - LOA	PRR10	The input type of input A.	RTRV-PRMTR-OSC SET-PRMTR-OSC
Input Type - LOB	PRR10	The input type of input B.	RTRV-PRMTR-OSC SET-PRMTR-OSC
Installation Status	PRR10	The installation status.	RTRV-CONF
Item No.	PRR10	The module item number.	RTRV-CONF
Latitude	PRR10	The current latitude.	RTRV-PRMTR-POS SET-PRMTR-POS
Longitude	PRR10	The current longitude.	RTRV-PRMTR-POS SET-PRMTR-POS
Phase Locked Loop Status	PRR10	The current phase locked loop status.	RTRV-PRMTR-LOOP SET-PRMTR-LOOP
Position Average	PRR10	The averages to apply to a position.	RTRV-PRMTR-POS SET-PRMTR-POS
Position Status	PRR10	The current position status.	RTRV-PRMTR-POS SET-PRMTR-POS
Primary Input	PRR10	The primary input.	RTRV-PRMTR-OSC
Serial Number	PRR10	The serial number.	RTRV-CONF

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the PRR10 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Controller-Specific Settings* apply specifically to the Reference controller specified by the Controller Selector.

C

Oscillator Module Settings

There are several oscillator module-related settings that are configurable in this dialog box. Figure 77 shows the layout of the action panel for Oscillator Module settings, and Table CV gives a brief description of each setting. The COMMAND column in the table provides a reference point in the PRR10 documentation where more detailed information can be found.

Figure 77. Action Panel - Oscillator Module Settings

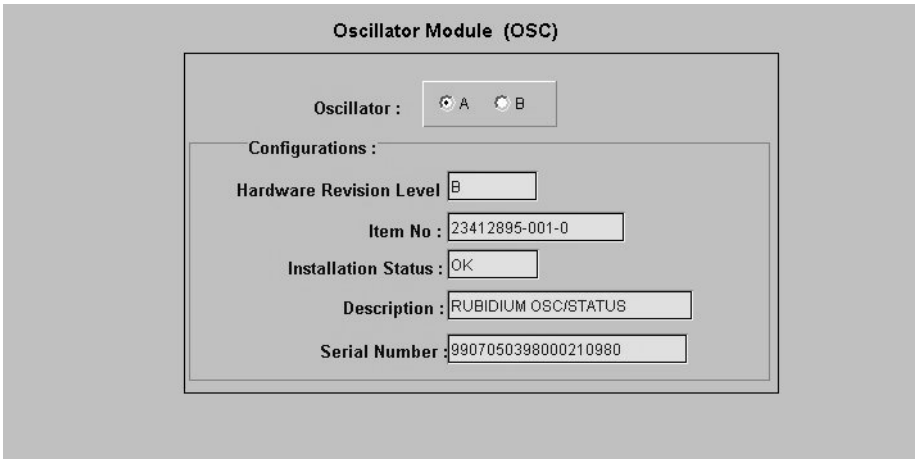


Table CV. Oscillator Module Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
		Oscillator Selector	
Oscillator	PRR10	Selects which oscillator module to view the configuration for.	RTRV-CONF
		Oscillator-Specific Settings[b]	
Description	PRR10	The oscillator module description.	RTRV-CONF
Hardware Revision Level	PRR10	The hardware revision level.	RTRV-CONF
Installation Status	PRR10	The status of the module.	RTRV-CONF
Item No.	PRR10	The item number of the module.	RTRV-CONF
Serial Number	PRR10	The serial number of the module.	RTRV-CONF

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the PRR10 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Oscillator-Specific Settings* apply specifically to the oscillator specified by the Oscillator Selector.

Alarm Module Settings

There are several alarm module-related settings that are configurable in this dialog box. Figures 78 and 79 show the layout of the action panel for Alarm Module settings, and Table CW gives a brief description of each setting. The COMMAND column in the table provides a reference point in the PRR10 documentation where more detailed information can be found.

Figure 78. Action Panel - Alarm Module Settings - Controller

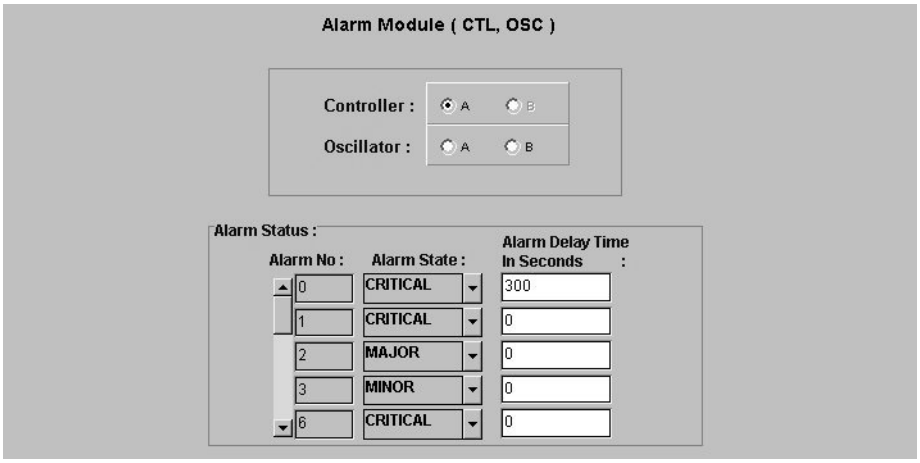


Figure 79. Action Panel - Alarm Module Settings - Oscillator

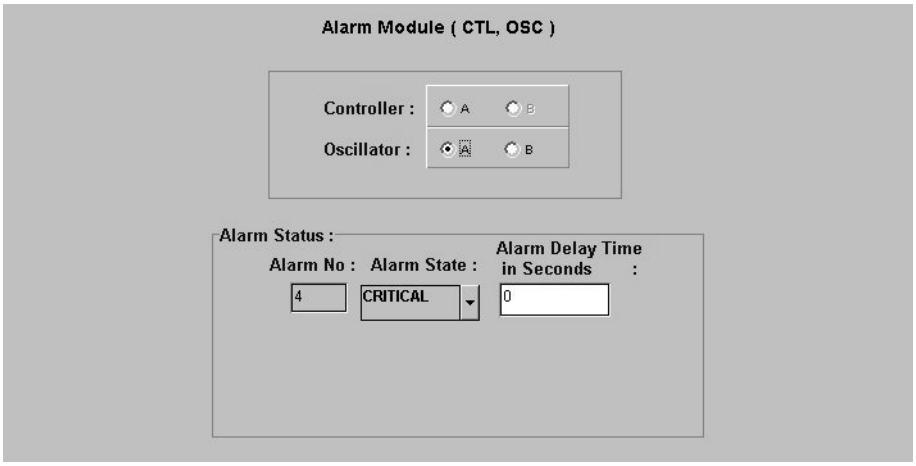


Table CW. Alarm Module Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
		Module Selector	

Table CW. Alarm Module Settings (cont'd)

Setting/Button	NE	Description	COMMAND (parameter)[a]
Controller	PRR10	Selects which CTL module to view the configuration for.	RTRV-CONF
Oscillator	PRR10	Selects the oscillator to view the configuration for.	RTRV-CONF
Module-Specific Settings[b]			
Alarm Delay Time in Seconds	PRR10	The alarm delay time in seconds.	SET-PRMTR-ALM RTRV-PRMTR-ALM
Alarm No.	PRR10	The number assigned to the alarm.	RTRV-PRMTR-ALM
Alarm State	PRR10	The severity of the alarm.	SET-PRMTR-ALM RTRV-PRMTR-ALM

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the PRR10 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Module-Specific Settings* apply specifically to the Alarm module specified by the Module Selector.

C

NE Information - TimeHub 5500

This chapter provides information and procedures that are specific to the TimeHub 5500 Network Element.

App. D

Network Element Status

The software contains dialog boxes that summarize the status of the various equipment cards within a selected TimeHub 5500 NE. These dialog boxes present displays which visually resemble the equipment panels of the various cards in the NE main and expansion shelves. The status summary displays are as follows:

- *Network Element Status Main Shelf dialog box* - This dialog box contains some general status information for the selected NE, as well as panel displays for the various boards that are installed in the main shelf of the NE.

- *Expansion Shelf Status dialog box*es - These dialog boxes, labeled Shelf-1, Shelf-2, Shelf-3, and Shelf-4, contain panel displays for the various boards that are installed in the expansion shelves of the NE.

The following paragraphs provide more information on these dialog boxes.

Network Element Status Main Shelf dialog box

The Network Element Status Main Shelf dialog box displays a summary of the status of the various boards in the main shelf of the selected NE. The dialog box contains panel displays which show the state of some of the indicators on the card's front panels. Figure 80 and Table CX briefly explain the Network Element Status Main Shelf dialog box.

Figure 80. Network Element Status Main Shelf Dialog Box

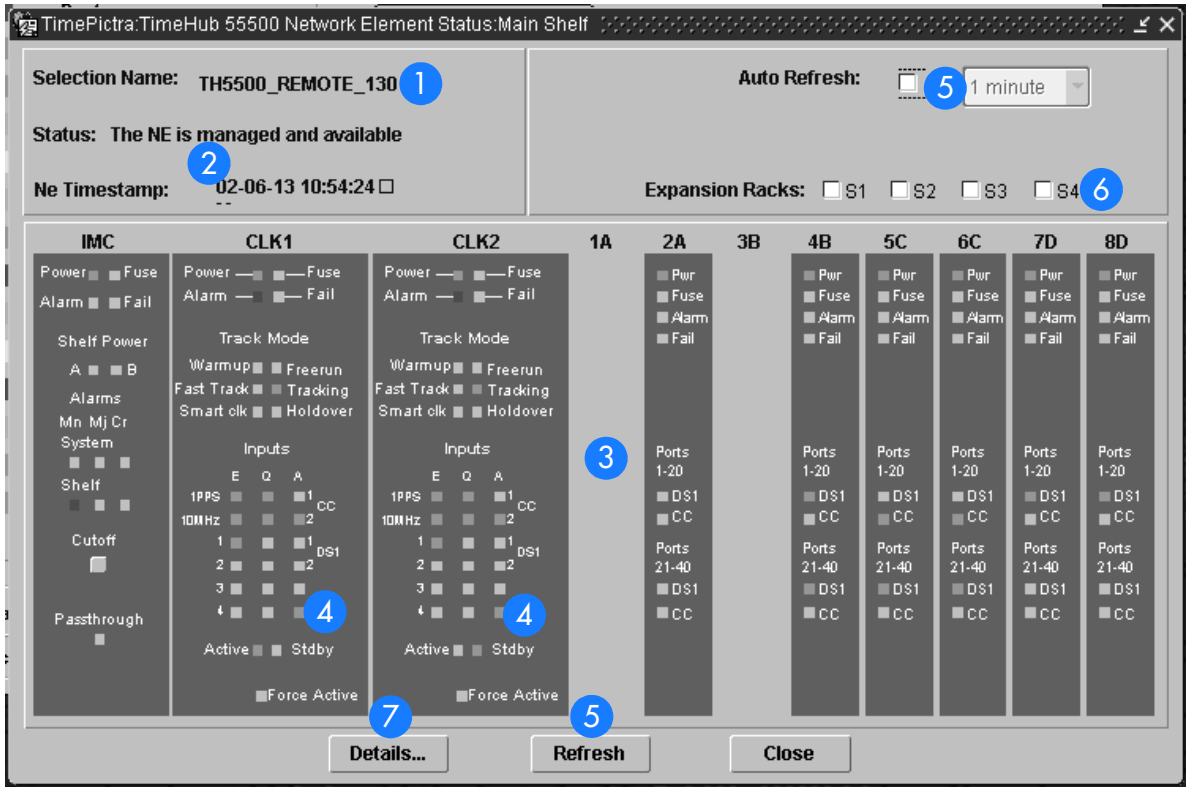


Table CX. Network Element Status Main Shelf Dialog Box Description

Item	Description
1	The Selection Name of the selected NE is shown here. This field cannot be edited; it reflects the NE that was selected on the synchronization network map or in the Launch Pad when the dialog box was invoked.
2	The Status field reports whether or not the selected NE is currently managed, available, unavailable, etc. If the NE is currently locked, as for modification, firmware download, etc., (Locked) also appears. The NE Timestamp field effectively shows the time and date when communications last took place with the selected NE.
3	This area functionally simulates the panel area of the main shelf of the selected NE. It shows the current status of the various boards in the NE via status indicators, which are a simulation of some of the LED indicators on the boards. If any of the cards are not present, the corresponding portion of this area will be blank. *Note:* If the selected NE is unavailable, TimePictra will not be able to retrieve status information, and an error message will be shown in place of the status panel display.
4	When the network element is in Remote mode, these indicators will be orange in the Network Element Status dialog box.

D

Table CX. Network Element Status Main Shelf Dialog Box Description (cont'd)

Item	Description
5	The Auto Refresh interval determines the frequency at which the status summary display is automatically updated. The default refresh interval is 1 minute, and the minimum refresh interval is 30 seconds. The status summary display can be updated at any time by clicking the Refresh button. If the Auto Refresh check-box is not selected, the display will not be automatically updated at the refresh interval, but can be manually refreshed by clicking the Refresh button. *Notes:* 1. A status summary display that is minimized (iconized) on the synchronization network map might pop up after the refresh interval expires. To avert this, deselect the Auto Refresh check-box before minimizing the status summary display. This also has the advantage of avoiding unnecessary queries to the NE. 2. If, upon refreshing the display, the software detects that the NE has been deleted, a warning message is displayed and then the summary display closes.
6	Selecting an Expansion Rack check-box ("S1," "S2," "S3," or "S4") invokes and displays an expansion rack dialog box containing the expansion shelf Clock and Output cards within the expansion rack. Deselecting the check-box closes the expansion rack dialog box. *Note:* If a given expansion rack is not present in the NE's configuration, the check-box for it will be inactive and appear grayed out.
7	Clicking the Details... button invokes a dialog box in which additional details can be viewed pertaining to the selected NE, such as its CLLI code, type, network address and protocol, as well as details for the various main and expansion shelf cards in the NE. *Note:* The information that appears in the details dialog box is retrieved from the inventory database.

Expansion Shelf Status dialog box

The Expansion Shelf Status dialog boxes, labeled Shelf-1, Shelf-2, Shelf-3, and Shelf-4, contain panel displays for the equipment cards contained in the expansion shelves of the selected NE. These dialog boxes can be selectively viewed or hidden from view by selecting or deselecting the pertinent check-box ("S1," "S2," "S3," or "S4") within the Network Element Status Main Shelf dialog box. Figure 81 and Table CY briefly explain the Expansion Shelf Status dialog box.

Figure 81. Expansion Shelf Status Dialog Box

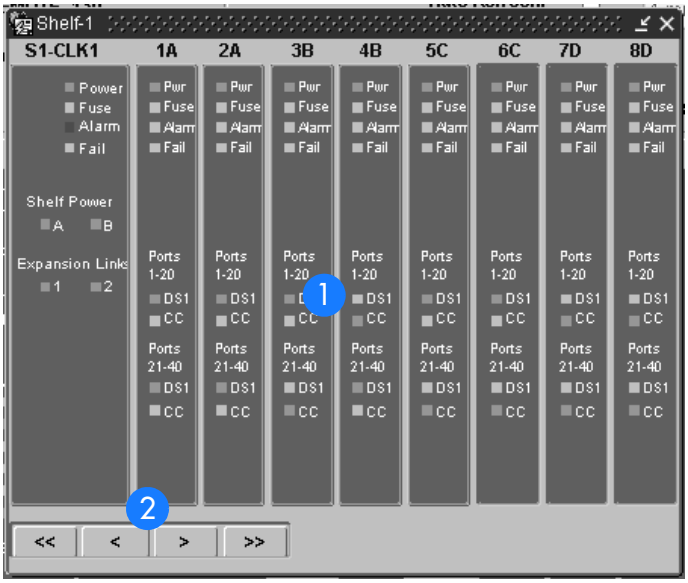


Table CY. Expansion Shelf Status Dialog Box Description

Item	Description
1	This area shows the current status of the various expansion shelf Clock and Timing Output cards in the pertinent expansion shelf via status indicators, which simulate some of the LED indicators on the cards. If any of the cards are not present, the corresponding slot in this area will be blank.
2	The Expansion Shelf Status dialog box contains slots for eighteen cards, and all eighteen slots do not fit into the viewing area of the dialog box. the horizontal scrolling buttons (<<, <, >, and >>)can be used to view status information for cards that are not currently in the viewing area of the dialog box.

Status Panel Indicator Descriptions

Tables CZ, DA, and DB briefly explain the status indicators shown for each card in the NE.

Table CZ explains the status indicators shown for the IMC card.

D

Table CZ. IMC Card Status Indicators

Indicator	Description
Power	When off, power is not present. When green, power is present.
Fuse	When off, the fuse is not open. When red, the fuse is open.
Alarm[a]	When off, no alarm condition exists in the selected NE. When red, an alarm condition exists in the selected NE.
Fail	When off, no hardware or firmware failure has occurred on the card. When red, a hardware or firmware failure has occurred on the card.
Shelf Power A	When off, the -48V A input is at the normal voltage level. When red, the -48V A input is below the normal voltage level.
Shelf Power B	When off, the -48V B input is at the normal voltage level. When red, the -48V B input is below the normal voltage level.
Mn[a] (System)	When off, no minor alarms exist outside the shelf. When red, a minor alarm condition exists outside the shelf.
Mj[a] (System)	When off, no major alarms exist outside the shelf. When red, a major alarm condition exists outside the shelf.
Cr[a] (System)	When off, no critical alarms exist outside the shelf. When red, a critical alarm condition exists outside the shelf.
Mn[a] (Shelf)	When off, no minor alarms exist within the shelf. When red, a minor alarm condition exists within the shelf.
Mj[a] (Shelf)	When off, no major alarms exist within the shelf. When red, a major alarm condition exists within the shelf.
Cr[a] (Shelf)	When off, no critical alarms exist within the shelf. When red, a critical alarm condition exists within the shelf.
Cutoff	When an alarm condition exists and this Cutoff button is clicked, all audible alarms are silenced. Only users of the Administrator and Security classes can use the Cutoff button.
Passthrough	When off, the IMC card is not supplying the output frequency to the clock cards. When red, both clock cards are malfunctioning, and the IMC card is supplying the output frequency.

a.Click this indicator when it is lit to display more information on the alarms related to it. TRSC card alarms currently have non-alarm severity level, so these alarms are not reported by this indicator.

Table DA explains the status indicators shown for the Clock cards.

Table DA. Clock Card Status Indicators

Indicator	Description
Power	When off, power is not present. When green, power is present.
Fuse	When off, the fuse is not open. When red, the fuse is open.
Alarm[a]	When off, no alarm condition exists in the Clock card. When red, an alarm condition exists in the Clock card.
Fail	When off, no hardware or firmware failure has occurred on the card. When red, a hardware or firmware failure has occurred on the card.
Warmup	When off, the Clock card is not in a warm-up state. When yellow, the Clock card is warming up, and the card is not yet active.
Freerun	When off, the Clock card is not in a freerun state When red, the Clock card is generating an output without using any tracking information from a reference source.
Fast Track	When off, the card is not in a fast track state. When green, the card has warmed up, is tracking, and is providing a usable output, but has not yet achieved Smart Clock (optimal quality) output.
Tracking	When off, the Clock card is not tracking a qualified input. When green, the Clock card is tracking a qualified input.
Smart Clk	When off, the system has not gathered sufficient information during tracking to provide Smart Clock (optimal quality) holdover output if necessary. When green, the system has gathered sufficient information during tracking to provide Smart Clock (optimal quality) holdover output if necessary.
Holdover	When off, the system is not in a holdover state. When red, all inputs are lost or unacceptable, and the system is now using the internal oscillator which is using recent tracking data from a qualified reference to provide the output.
1 PPS, 10 MHz, 1 - 4 E	When off, the associated reference input is not enabled for tracking. When green, the associated reference input is enabled for tracking.
1 PPS, 10 MHz, 1 - 4 Q	When off, the associated reference input is not qualified for tracking. When green, the associated reference input is qualified for tracking.
1 PPS, 10 MHz, 1 - 4 A	When off, the associated reference input is not being actively used for tracking. When green, the associated reference input is actively being used for tracking.

Table DA. Clock Card Status Indicators (cont'd)

Indicator	Description
Active	When off, the Clock card is not the synchronization signal source for all output cards. When green, the Clock card is the synchronization signal source for all output cards.
Standby	When off, the Clock card is not generating an output that is phase-locked to the output of the other (active) clock card. When green, the Clock card is generating an output that is phase-locked to the output of the other (active) clock card.
Force Active	When the security user clicks this button, the associated Clock card is forced to the active state, which in turn forces the other, currently active card to the standby state.

a.Click this indicator when it is lit to display more information on the alarms related to it.

Table DB explains the status indicators shown for the Output cards

Table DB. Output Card Status Indicators

Indicator	Description
Pwr	When off, power is not present. When green, power is present.
Fuse	When off, the fuse is not open. When red, the fuse is open.
Alarm[a]	When off, no alarm condition exists. When red, an alarm condition exists.
Fail	When off, no hardware or firmware failure has occurred on the output driver card. When red, a hardware or firmware failure has occurred on the output driver card.
Ports 1-20 DS1	When off, the output driver card is not providing DS1 output signals on ports 1 through 20. When green, the output driver card is providing DS1 output signals on ports 1 through 20.
Ports 1-20 CC	When off, the output driver card is not providing CC output signals on ports 1 through 20. When green, the output driver card is providing CC output signals on ports 1 through 20.
Ports 21-40 DS1	When off, the output driver card is not providing DS1 output signals on ports 21 through 40. When green, the output driver card is providing DS1 output signals on ports 21 through 40.

Table DB. Output Card Status Indicators (cont'd)

Indicator	Description
Ports 21-40	When off, the output driver card is not providing CC output signals on ports 21 through 40.
CC	When green, the output driver card is providing CC output signals on ports 21 through 40.

a.Click on this indicator when it is lit to display more information on the alarms related to it.

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the Time Hub 5500. The sub-sections within this section reflect the eight setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- NE (Network Element) settings
- IMC Card settings
- CLK Card settings
- Input settings
- Output settings
- Threshold settings
- Event settings
- TL1 Command settings

Each sub-section includes the following:

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL1 command or Keyword within the NE's documentation where more detailed information on the particular setting can be found.

Network Element Settings

The software communicates with NEs via a network connection. There are several networking settings that are configurable in this dialog box. Figure 82 shows the layout of the action panel for Network Element settings, and Table DC gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 82. Action Panel - Network Element Settings

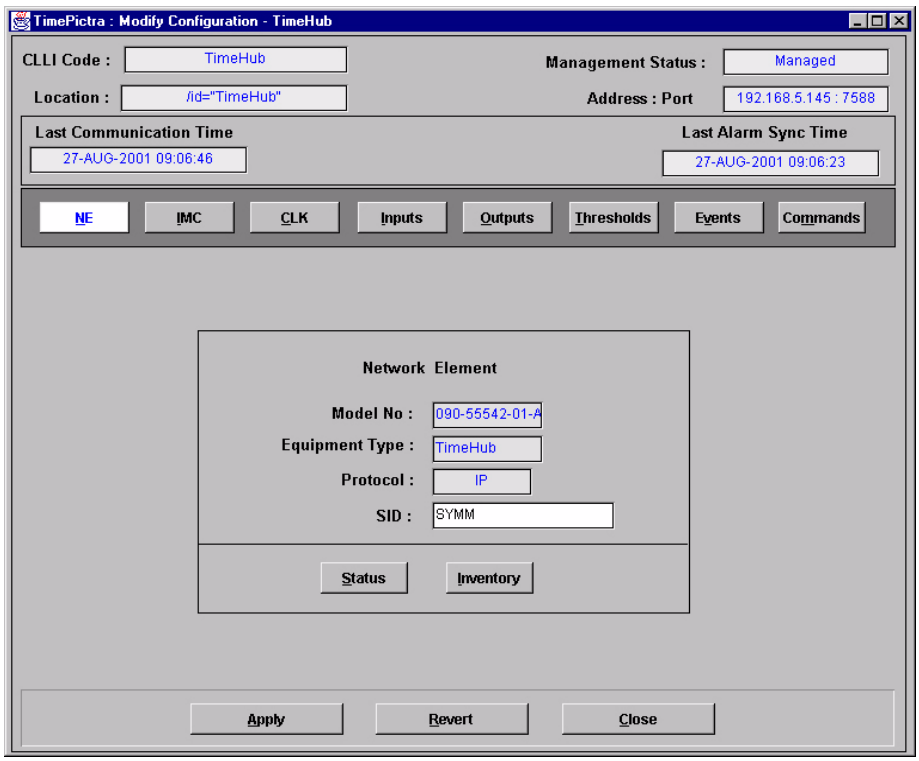


Table DC. Network Element Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Equipment Type	NE	The NE's equipment type.	RTRV-NETYPE (command)
Model No.	NE	The NE's model number.	RTRV-NETYPE (command)
Protocol	NE	The networking protocol used by the NE.	*None*
SID	NE	The system identification code assigned to the NE.	SET-SID (command)
		Buttons	

D

Table DC. Network Element Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Inventory	All	Invokes the NE Inventory dialog box. Refer to the chapter entitled Inventory Management for details on the NE Inventory dialog box.	*None*
Status	All	Invokes the Network Element Status dialog box. The section entitled Network Element Status in this chapter provides details on the Network Element Status dialog box.	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

IMC Card Settings

An NE contains one Information Management Card (IMC) which is installed in the Master (S0) rack. The IMC card manages alarms from the TimeHub 5500 System, and provides local and Ethernet LAN communication interfaces. The local communication interface is a serial data port. There are several IMC Card settings pertaining to the local serial data port that are configurable in this dialog box. Figure 83 shows the layout of the action panel for IMC Card settings, and Table DD gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 83. Action Panel - IMC Card Settings

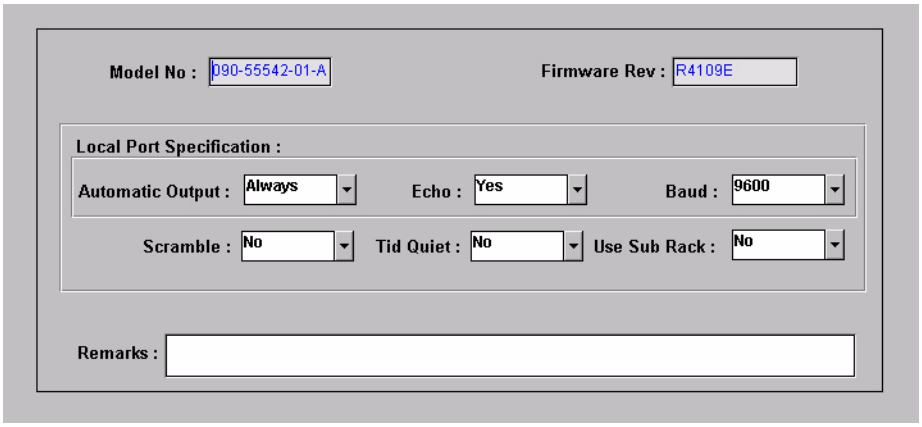


Table DD. IMC Card Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Automatic Output	IMC	Sets the local port to report automatic messages always, never, or only when logged into the local port.	LCLAO (keyword)
Baud	IMC	Sets the baud rate on the local port.	LCLBAUD (keyword)
Echo	IMC	Tells the system whether or not to echo commands to the local terminal.	LCLECHO (keyword)
Firmware Rev.	IMC	The firmware revision code of the IMC card.	RTRV-NETYPE (command)
Model No.	IMC	The model number of the IMC card.	RTRV-NETYPE-ALL (command)
Remarks	IMC	A text field for entering notes (remarks) concerning the IMC card. *(TimePictra database only)*	*None*
Scramble	IMC	Tells the system whether or not an encryption for communications to and from the TimeHub 5500 is allowed.	SCRAMBLE (keyword)

D

Table DD. IMC Card Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
TID Quiet	IMC	Tells the system whether or not to suppress the DENY response that is normally generated when the target identifier <tid> specified in the current command does not match the current system identifier <sid>.	TIDQUIET (keyword)
Use Sub Rack	IMC	Tells IMC that Sub Racks are attached to the main unit.	USESUBRCK (keyword)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

CLK Card Settings

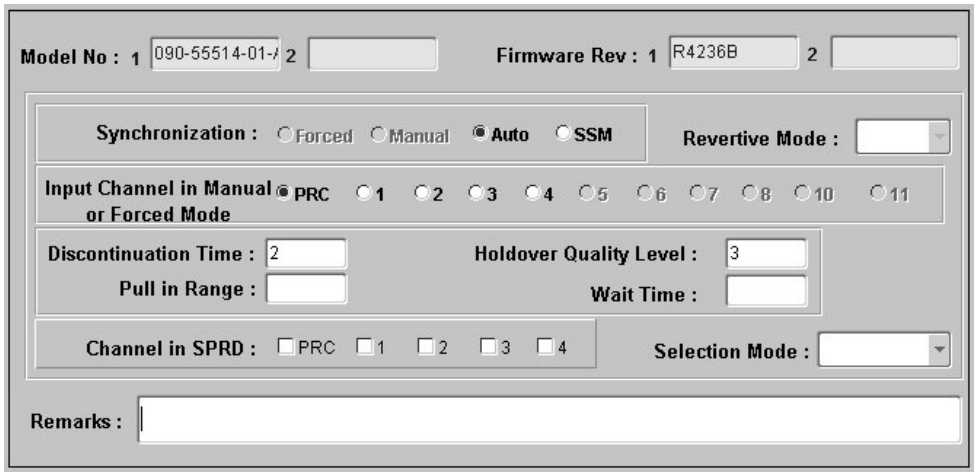
Clock cards provide input monitoring, selection, and holdover. Four types of clock cards are available:

- Five-input with an ST2 rubidium oscillator
- Nine-input with an ST2 rubidium oscillator
- Five-input with an ST3E quartz oscillator
- Nine-input with an ST3E quartz oscillator

Two clock cards are required for redundancy; oscillator types can be mixed. Each clock card receives input reference signals from the Input/Alarm Connector card, determines their quality for use by the system, and selects the most appropriate input signal to use as the active reference. During normal operation, the active clock tracks the active input signal, and produces a precise frequency for the Output cards based on the input reference. If the input reference is disqualified, the clock card selects another qualified input signal as the reference. If all input references fail, the clock card goes into Holdover mode using its own oscillator as the system reference.

There are several Clock card settings that are configurable in this dialog box. Figure 84 shows the layout of the action panel for Clock Card settings, and Table DE gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 84. Action Panel - CLK Card Settings



D

Table DE. CLK Card Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Channel in SPRD	Clock	Defines which channels will be used for the Spread measurement. *Note:* These check-boxes will be either active or inactive (grayed out), depending upon whether the shelf is a remote or non-remote shelf.	SPRDCHN (keyword)
Discontinuation Time	Clock	Determines the number of consecutive seconds with severe errors the system will wait before disqualifying the channel.	DSCTIME (keyword)
Firmware Rev.	Clock	The firmware revision codes of the Clock 1 and Clock 2 cards.	RTRV-NETYPE-ALL (command)
Holdover Quality Level	Clock	Defines the quality assumed for the clock card in SSM mode.	HFQLEVL (keyword)
Input Channel in Manual or Forced Mode	Clock	Specifies which channel is to be used in manual or forced synchronization mode. *Note:* Some of these radio buttons will be either active or inactive (grayed out), depending upon whether the shelf is a remote or non-remote shelf.	MANCHAN (keyword)
Model No.	Clock	The model numbers of the Clock 1 and Clock 2 cards.	RTRV-NETYPE-ALL (command)
Pull in Range	Clock	Controls how far the input can be off from the absolute frequency from the local oscillator before it is disqualified.	PIRANGE (keyword)
Revertive Mode	Clock	Controls how an input reference is chosen in automatic and manual mode. *Note:* This drop-down list is inactive if the clock card firmware version is R4236B.	REVERT (keyword)
Remarks	Clock	A text field for entering notes (remarks) concerning the Clock card. *(TimePictra database only)*	*None*
Selection Mode	Clock	Controls how the input channel is chosen as a synchronization source. *Note:* This drop-down list is inactive for clock card firmware versions less than R4236B.	SELMDE (keyword)
Synchronization	Clock	Controls how the input channel is chosen as a synchronization source. *Note:* The Forced and Manual radio buttons are inactive (grayed out) if the clock card firmware version is R4236B.	SYNCMDE (keyword)

Table DE. CLK Card Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Wait Time	Clock	Sets the period of time (wait time) an input channel is provided to re-establish all of its operating parameters before it will be considered for use as a synchronization source.	WTRSS (keyword)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

Input Settings

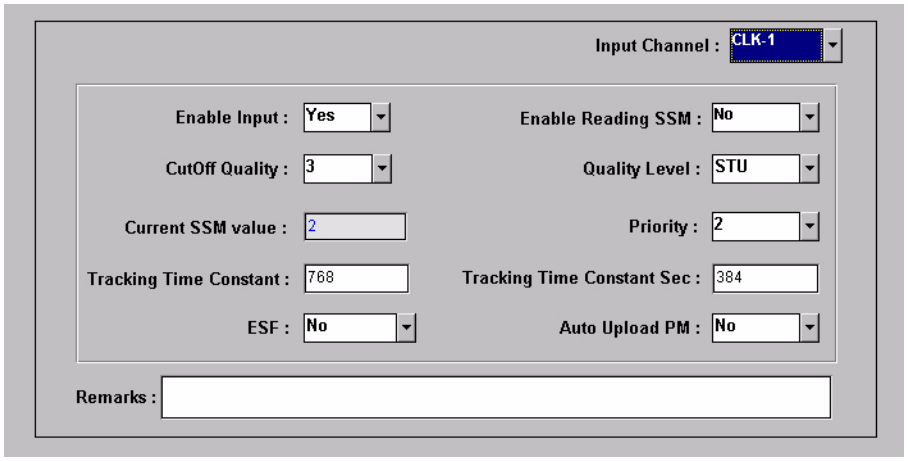
The TimeHub 5500 Shelf has five timing input channels: one PRC input and four DS1 inputs (CLK-1 through CLK-4). Optionally, four additional DS1 timing inputs can be used (CLK-5 through CLK-8), depending on the type of clock card used. Each DS1 input can be used as a reference or can be monitored only. If used as a reference, the input is used for tracking and can cause events or alarms if not qualified. If monitored only, the input is monitored without being used for tracking.

There are several settings related to the selection, qualification, and measurement of input signals that are configurable in this dialog box. Figures 85 and 86 show the layout of the action panel for the CLK-1 through CLK-4 (or CLK-8) and PRC input settings, and Table DF gives a brief description of each setting.

- The Channel setting under Channel Selector in the following table selects the specific input channel to which the remainder of the settings apply.
- The Channel-Specific Settings apply specifically to the input channel selected with the Channel parameter.

The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 85. Action Panel - Input Settings - Inputs CLK-1 through CLK-8



D

Figure 86. Action Panel - Input Settings - PRC Input

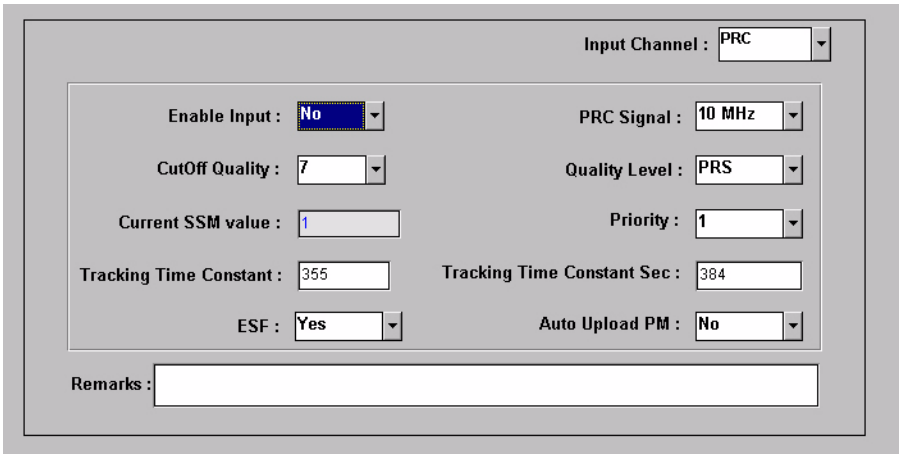


Table DF. Input Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Channel Selector	
Input Channel	Input	The selection made using this drop-down list specifies the input channel to which the remainder of the channel-specific parameters in the lower portion of the action panel apply.	*None*
		Channel-Specific Settings[b]	
Auto Upload PM	Input	Inhibits or allows automatic display of performance data for the selected input channel.	AUTOPM (keyword)
Current SSM Value	Input	The current SSM value from the selected input channel.	PARAMETER=CURRSSM
Cutoff Quality	Input	Specifies the minimum SSM quality level required in order for the selected input to be used. SSM sync mode must be enabled for this selection to be functional.	QCUTOFF (keyword)
Enable Input	Input	Controls whether or not the selected input will be considered as a reference source.	ENABLE (keyword)
Enable Reading SSM	Input	Enables or disables the reading of the SSM bit on the selected input channel.	SSMENB (keyword)
PRC Signal	Input	Specifies either a 5 MHz or 10 MHz signal on the PRC input channel.	PRC5MHZ (keyword)

D

Table DF. Input Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Priority	Input	Specifies a priority for the selected input channel. The channel priority is used by the selection algorithm in determining which channel will be tracked. *Note:* For all channels with the same priority value, the lowest numbered channel will be considered to have top priority.	PRIORITY (keyword)
ESF	Input	Specify whether the input that would be fed in this channel would be ESF or non-ESF.	ESF (keyword)
Tracking Time Constant Sec	Input	Sets the time constant for the secondary oscillator. It applies only to the clock card or different oscillator mixed on one system.	TCONTSEC (keyword)
Quality Level	Input	Specifies the assumed SSM quality level for the selected input channel. This assumed SSM level is used when SSM has been disabled.	QLEVEL (keyword)
Remarks	Input	A text field for entering notes (remarks) concerning the selected input channel. *(TimePictra database only)*	*None*
Signal Mode	Input	Specifies the input signal mode.	SIGMODE (keyword)
Tracking Time Constant	Input	Sets the loop tracking time constant for the selected input once the system is fully warmed up.	TCONST (keyword)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Channel-Specific Settings* apply specifically to the input channel specified by the Channel Selector.

Output Settings

An NE can contain a master rack and four expansion racks. Each rack can contain up to four Output cards, or eight in protected mode where Output cards are installed in redundant pairs. Each Output card provides signals to 40 outputs.

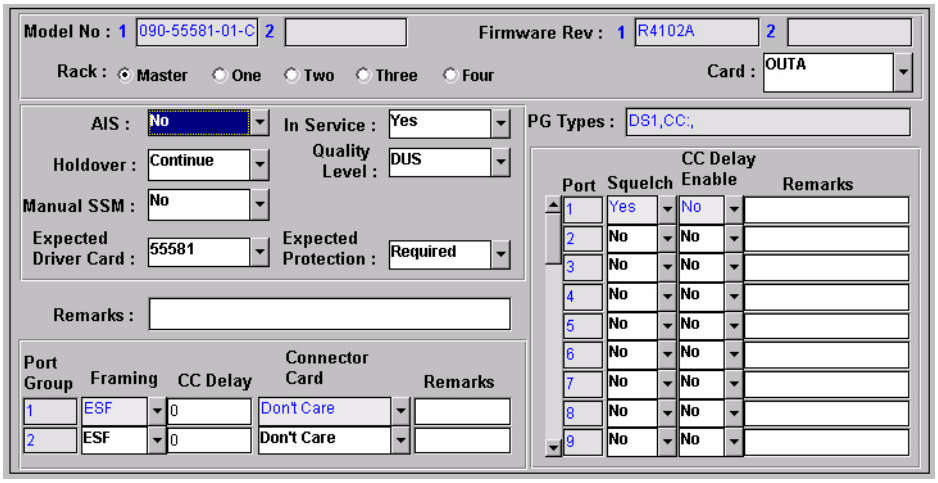
Output cards are typically installed in redundant pairs. Paired slots in the racks are labeled A, B, C, and D, with redundant boards being installed in each pair of slots. If boards are not installed as redundant pairs, only one board will be installed per pair of slots.

There are several Output card settings that are configurable in this dialog box. Figure 87 shows the layout of the action panel for Output settings, and Table DG gives a brief description of each setting.

- The settings under Rack Selector and Card Selector in the following table are used to select a specific Output card or redundant pair of Output cards to which the remainder of the settings apply. For example, if you want to modify settings for the Output cards in the slot labeled A in the master rack, select the Master radio button, and select OUTA in the Card drop-down list.
- The settings under Card-Specific Settings affect all outputs of the selected Output card or pair of redundant Output cards.
- Port-Specific Settings apply independently to each output port of the selected Output card. The output ports are shown in the left-most column of the scroll box in the dialog box. Those settings in the same row as the listed port apply to that port. Note that this portion of the dialog box can be scrolled to show all output ports.

The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 87. Action Panel - Output Settings



D

Table DG. Output Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Rack Selector	
Rack	Output	The selection made using these radio buttons specifies the rack containing the card to which the reminder of the settings apply. *Note:* The "One," "Two," "Three," and "Four" radio buttons will be inactive (grayed out) if the corresponding expansion shelf is not present.	*None*
		Card Selector	
Card	Output	The selection made in this drop-down list specifies the card to which the remainder of the card-specific parameters in the lower portion of the action panel apply.	*None*
		Card-Specific Settings[b]	
AIS	Output	Specifies whether the selected Output card generates AIS, or the usual formatted signal.	AIS (keyword)
Expected Driver Card	Output	Determines the expectation of an output card that can be inserted in a given slot. If there is a mismatch on the actual card in the slot, an alarm is generated.	EDRVCRD (keyword)
Expected Protection	Output	Sets the requirement for Output card protection.	EPROT (keyword)
Firmware Rev.	Output	The firmware revision codes of the selected Output card pair.	RTRV-NETYPE-ALL (command)
Holdover	Output	Controls the selected Output card's operation when the system is in holdover.	HLDACT (keyword)
In Service	Output	Determines whether or not the Output driver card is enabled or disabled.	INSRVC (keyword)
Manual SSM	Output	Determines whether or not the user can set the SSM quality level for the specified output channel.	OMANSSM (keyword)
Model No.	Output	The model numbers of the selected Output card pair.	RTRV-NETYPE-ALL (command)
PG Types	Output	A description of the port group type. This information is retrieved during the NE management operation and is for display only.	*None*
Quality Level	Output	Specifies the SSM quality level for the specified output channel. This SSM level is used when the Manual SSM function has been enabled.	OOLEVEL (keyword)

Table DG. Output Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Remarks	Output	A text field for entering notes (remarks) concerning the selected Output card. *(TimePictra database only)*	*None*
		Port Group Selector	
Port Group	Output	The number in this column indicates the port group to which the remainder of the port group-specific parameters in the row apply.	*None*
		Port Group-Specific Settings[c]	
Framing	Output	Sets the framing for a specific output connector card port group.	OUTESF (keyword)
CC Delay	Output	Sets the delay (in nanoseconds) for the CC output connector card.	CCDEL (keyword)
Connector Card	Output	Sets the requirement for the output connector card type.	ECONCRD (keyword)
Remarks	Output	A text field for entering notes (remarks) concerning the selected port group. *(TimePictra database only)*	*None*
		Port Selector	
Port	Output	The number in this column indicates the port to which the remainder of the port-specific parameters in the row apply.	*None*
		Port-Specific Settings[d]	
Squelch	Output	Specifies whether or not the selected output port is to be squelched.	SQUELCH (keyword)
CC Delay Enable	Output	Determines whether or not the delay for the selected output port is enabled.	CCDENB (keyword)
Remarks	Output	A text field for entering notes (remarks) concerning the selected output port. *(TimePictra database only)*	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Card-Specific Settings* apply specifically to the output card specified by the Card Selector.
c.*Port Group-Specific Settings* apply specifically to the port group specified by the Port Group Selector.
d.*Port-Specific Settings* apply specifically to the output port specified by the Port Selector.

Threshold Settings

The TimeHub 5500 continuously makes phase deviation measurements on each input reference. Network performance parameters based on these measurements are computed and updated periodically. Depending on the type of measurement, the time periods are either averaging time or observation time and are performed on a single input port or across all enabled input ports. Measurement thresholds can be set for each averaging or observation time.

The measurement threshold settings are configurable in this dialog box. Figure 88 shows the layout of the action panel for the threshold settings, and Table DH gives a brief description of each setting.

- The Channel setting under Channel Selector in the following table selects the specific input channel to which the remainder of the settings apply.
- The Channel-Specific Settings apply specifically to the input channel selected with the Channel parameter.

The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 88. Action Panel - Threshold Settings

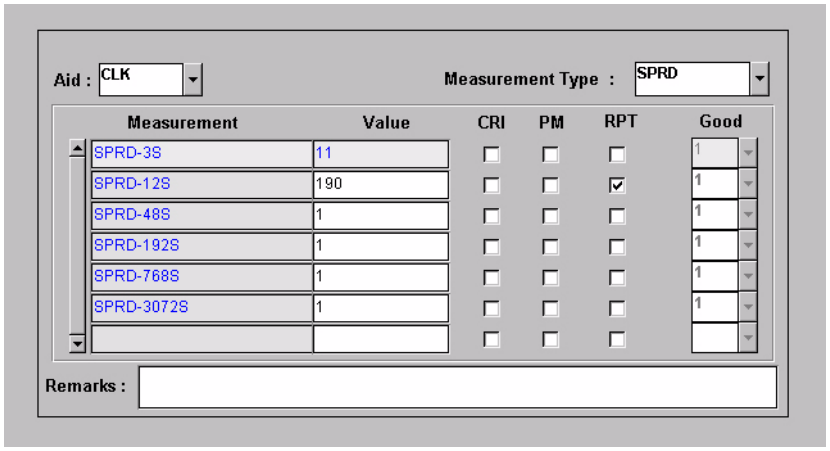


Table DH. Threshold Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Channel Selector	
Channel		The selection made in this drop-down list specifies the input channel to which the remainder of the channel-specific parameters in the lower portion of the action panel apply.	*None*
		Channel-Specific Settings[b]	

D

Table DH. Threshold Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
CRI		Determines whether or not the input port is disqualified if the threshold is exceeded. The setting does not apply to SPRD measurement type	ED-SYNC (command)
Good		The number of consecutive good measurements that must occur following a bad measurement before an input signal can be qualified and for the INMEAS event to be cleared.	ED-SYNC (command)
Measurement Type		This selection acts as a filter to display only certain measurement types, or all measurement types. *(TimePictra database only)*	*None*
Measurement		The description in this column indicates the threshold to which the setting in the Value column applies.	SET-TH (command)
PM		Tells the system to display the measurement every 15 minutes (as it occurs).	ED-SYNC (command)
Remarks		A text field for entering notes (remarks) concerning the threshold settings for the selected input channel. *(TimePictra database only)*	None
RPT		Tells the system to display an Automatic Message if the threshold is exceeded.	ED-SYNC (command)
Value		The value of the selected threshold level.	SET-TH (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Channel-Specific Settings* apply specifically to the input channel specified by the Channel Selector.

Event Settings

The NE generates event messages to report ongoing or transient conditions that have occurred or are occurring within the NE or the network. Events are classified as either alarms or non-alarmed events.

Events have default severity levels assigned to them, and the severity level of certain events can be changed in this dialog box. Figure 89 shows the layout of the action panel for Event settings, and Table DI gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 89. Action Panel - Event Settings

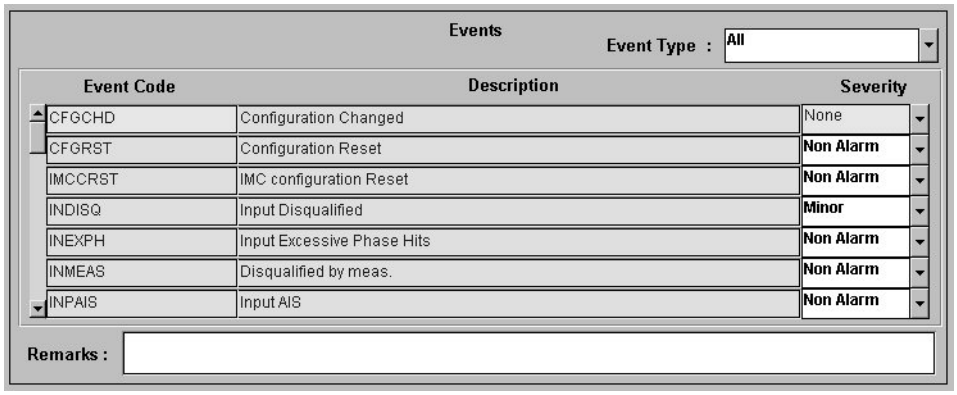


Table DI. Event Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Event Type		This selection acts as a filter to display only certain event types, or all event types. *(TimePictra database only)*	*None*
Event Code		The code in this column indicates the event condition to which the setting in the Severity column applies.	SET-ATTR (command)
Description		The description in this column indicates the event condition to which the Severity setting applies.	*None*
Severity		The severity of the alarm or event indicated in the row.	SET-ATTR (command)
Remarks		A text field for entering notes (remarks) concerning the event settings. *(TimePictra database only)*	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

TL1 Command Settings

The software communicates with the NEs it manages using TL1 commands. Users can also communicate directly with NEs by sending TL1 commands and interpreting TL1 responses via the NE's local port using a dedicated terminal or craft terminal software.

Every TL1 command has a default security level assigned to it. The security level determines the user class that is authorized to execute a given command. The security level of certain commands can be changed in this dialog box. Figure 90 shows the layout of the action panel for TL1 Command settings, and Table DJ gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TimeHub 5500 documentation where more detailed information can be found.

Figure 90. Action Panel - TL1 Command Settings

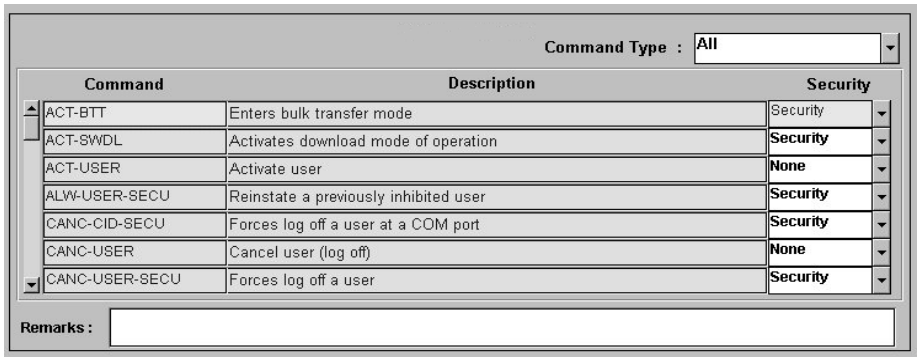


Table DJ. TL1 Command Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Command Type		This selection acts as a filter to display only certain command types, or all command types. *(TimePictra database only)*	*None*
Command		The syntax in this column indicates the command to which the setting in the Security column applies.	ED-CMD-SECU (command)
Description		The description in this column indicates the command to which the setting in the Security column applies.	*None*
Security		The access level of the command indicated in the row.	ED-CMD-SECU (command)

D

Table DJ. TL1 Command Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Remarks		A text field for entering notes (remarks) concerning the command settings. *(TimePictra database only)*	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 5500 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

Firmware Download

The full firmware download process consists of nine operations, which correlate to buttons in the Firmware Download dialog box. The nine operations are summarized in the following bulleted list:

- Activate SWDL Mode - The specified card on the specified NE is put into firmware download mode, also known as SWDL mode. In this mode, the card ceases any activity that is not associated with firmware downloading, and accepts only commands associated with the firmware download process.
- Copy SFWR to Bkup - The version of firmware currently on the card's main memory EEPROMs, the version to be upgraded, is copied to the backup memory EEPROMs on the card.
- Verify Bkup - The card performs a verification check on the firmware code in backup memory to ensure that it is not corrupted.
- Delete Main - The card's main memory EEPROMs are erased.
- Activate BTT Mode - The card is put into bulk text transfer mode. In this mode, the card is ready to accept segments of firmware code.
- Dwnld New Code - Lines of code - one line at a time - are transferred from a firmware file, which is accessible on the network, to the card's main memory EEPROMs. As each line transfers successfully, the next line is transferred until the end of the firmware file is reached, or until certain parameters set within the Firmware Download dialog box dictate that the transfer must end.
- Cancel BTT Mode - The card is taken out of bulk text transfer mode.
- Verify Main - The card performs a verification check on the new firmware code in main memory to ensure the validity of the code instructions. The TimePictra system makes no attempt to verify firmware files stored on it; this is the first time that the validity of the code instructions is verified.
- Cancel SWDL Mode - The card is taken out of firmware download mode (SWDL mode), hence, normal card operation resumes. After this step in the process completes successfully, the card begins functioning using the upgraded firmware.

Recovery from Firmware Download Process Failure

There are two recovery options. The recovery process offers a choice to accept or decline each step. The two options are as follows:

- All Possible Steps - If this recovery option is chosen, all possible recovery steps are presented, and it is up to the user to accept or decline the steps that might not be necessary. The possible recovery steps, which will always be presented when All Possible Steps is chosen, are as follows:
  - ACTIVATE_SWDL_MODE - activate firmware download mode
  - ACTIVATE_BTT_MODE - activate bulk text transfer mode
  - CANCEL_BTT_MODE - cancel bulk text transfer mode
  - COPY_BKUP_TO_MAIN - copy firmware in backup memory to main memory
  - CANCEL_SWDL_MODE - cancel firmware download mode
- Ones That Situation Requires - If this recovery option is chosen, the user is presented only with the steps that are necessary, given the current status of the card. For example, if the firmware download process fails at the Verify Main stage, the ACTIVATE_SWDL_MODE, ACTIVATE_BTT_MODE, and CANCEL_BTT_MODE steps are presented, since the firmware download process had already cancelled BTT mode, and the card was not yet taken out of SWDL mode. The user is still given the option to accept or decline each step presented.

Recovery from Firmware Download Process Interruptions

It is possible that the firmware download process can be interrupted, as when a network failure or other abnormal condition occurs. In such situations, the firmware code already downloaded to the card's main memory is typically valid, albeit incomplete. The software accommodates these situations.

A firmware download mode exists in which you can specify that partial code be appended to the existing code in the card's main memory (in a normal firmware download situation, the card's main memory is erased prior to the commencement of downloading).

Download Firmware

Use Procedure CD if totally replacing the current firmware on the target card. This procedure accommodates the situation where the contents of the firmware file are downloaded in full, as well as the situation where a portion of the firmware file is downloaded.

To append code to the firmware already stored on the target card, as when continuing the download process after an interruption, go to Procedure CE, entitled Continue the Firmware Download Process After an Interruption.

Notes:

1. A normal firmware download scenario might involve downloading firmware to all three applicable cards; IMC, Clock-1, and Clock-2 on an NE. If this is the case, it is recommended that the firmware upgrade be downloaded to the NIMC card first.
2. If downloading firmware to the Clock cards, note that firmware can only be downloaded to the Clock card that is in standby mode. If the target Clock card is not in standby mode, force the other card to the active state, thereby effectively forcing the target card to the standby state. Refer to the section entitled Network Element Status in the appendix entitled NE Information - Time Hub 5500 for information on forcing an Clock card active.

Procedure CD. Downloading Firmware

Step	Action
Notes: 1. Users of the Security class can perform this procedure. 2. The target NE must be remanaged before the beginning of the firmware download process, and then again after the firmware download process has completed. This action synchronizes the firmware version number stored in the database with the firmware version number in the target NE. It also synchronizes the alarms in the NE with the alarms in the database.	
1	Ensure the firmware code to be downloaded is stored as a file on the TimePictra workstation. Also, note the following: Record the file name as well as the full directory path to the file. You will need to enter it in the procedure. Ensure the Security-class user (sec) is the owner of the firmware file and has read permission on the file. If only a portion of the file will be downloaded, determine the line number of code to be downloaded, as well as the number of lines to be downloaded. Ensure the validity of the firmware code instructions to be downloaded. TimePictra takes no automatic measures to ensure the validity of the firmware code before it is downloaded.
2	In the synchronization map or Launch Pad, click on the NE that is the intended target for the firmware download.
3	Invoke the Firmware Download dialog box: *Synchronization Map* - Click TimePictra from main menu, then click Configuration, and then Firmware Download. *Launch Pad* - Choose Firmware Download... from the Config menu.

D

Procedure CD. Downloading Firmware (cont'd)

Step	Action
4	Choose the Card Aid from the drop-down list in the Aid field. This is the rack and identifier of the target card. The possible selections are in the following form: *rack-card* where *rack* is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and *card* is the identifier of the card to which the firmware is to be downloaded.
5	Enter the name of the firmware code file in the Firmware Code File field. This is the name of the file containing the firmware code to be downloaded. Note that the full path to the file must be entered into this field with the filename.
6	Enter a value in the In Steps Of field. This field determines how often the status fields: Chars Downloaded, Lines Downloaded, and Last OK Mem Address, are updated.
7	Ensure the Drct Dwnld New Code check-box is not selected. When this check-box is not selected, the target card's main memory EEPROMs are erased prior to the commencement of downloading.
8	If the entire file is to be downloaded, make no changes to the Download Lines and Skip Lines fields and go to Step 9. If a portion of the file is to be downloaded, change those fields as follows: In the Download Lines Field, enter the total number of lines to be downloaded from the file. For example, if the entire file consists of 10000 lines and the portion of it you wish to download is 756 lines long, enter 756. In the Skip Lines Field, enter a value that is one less than the number of the first line of the file portion that you wish to download. For example, if the portion of a file you wish to download begins on line 100 of the file, enter 99.

Procedure CD. Downloading Firmware (cont'd)

Step	Action
9	Begin the firmware download process using either automatic or manual mode: *Note:* The paragraph entitled The Firmware Download Process at the beginning of this section describes each step in the firmware download process. To use the Automatic Mode, click the Auto Download button. The firmware download process will proceed through the steps automatically. As each step begins, the appropriate button in the dialog box will appear active, with all other buttons de-emphasized (grayed out). To use the Manual Mode, click the Activate SWDL Mode button. In manual mode, click each button in the manual operation portion of the dialog box (buttons labeled `Step` *x*) to step through the process. As each step is completed, a confirmation message will be shown in the "Response and Status" fields. Ensure the current step completes with a status of DONE before going to the next step.
10	Firmware Download is considered complete and successful when the Cancel SWDL Mode button appears active, and the message DONE is shown in the Response and Status fields. Perform one of the following actions depending on whether the process completes successfully, fails, or is interrupted: If the Firmware Download process successfully completes, continue with step 11. If the Firmware Download process fails, go to Procedure CF, Failure Recovery. If the Firmware Download process fails, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails. If the Firmware Download Process is interrupted, go to Procedure CE, Continue the Firmware Download Process After an Interruption. If the Firmware Download process is interrupted, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails.
11	If you plan to download firmware to another NE, click the Reset button to reset the dialog box, then repeat this procedure as necessary.

End of Procedure

Continue the Firmware Download Process After an Interruption

Procedure CE assumes that the firmware download process was interrupted.

Note: **In order to continue the firmware download process after an interruption, the number of lines of code already downloaded must be known. This can be calculated from the Lines Downloaded and Skip Lines fields in the Firmware Download dialog box. Note that these fields might be reset when Reset is clicked, or the dialog box is**

D

closed.

If the last line to be downloaded is not the end of the file, determine exactly how many more lines from the file need to be downloaded.

Procedure CE. Continue the Firmware Download Process After an Interruption

Step	Action
Notes: 1. Users of the Security class can perform this procedure. 2. The target NE must be remanaged before the beginning of the firmware download process, and then again after the firmware download process has completed. This action synchronizes the firmware version number stored in the database with the firmware version number in the target NE. It also synchronizes the alarms in the NE with the alarms in the database.	
1	In the synchronization map or Launch Pad, click on the NE that is the intended target for the continuation of the firmware download.
2	Invoke the Firmware Download dialog box: *Synchronization Map* - Click the Firmware Download menu item from the TimePictra menu. *Launch Pad* - Choose Firmware Download... from the Config menu.
3	Choose the Card Aid from the drop-down list in the Aid field. This is the rack and identifier of the target card. The possible selections are in the following form: *rack-card* where *rack* is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and *card* is the identifier of the card to which the firmware is to be downloaded.
4	Enter the name of the firmware code file in the Firmware Code File field. This is the name of the file containing the firmware code to be downloaded. Note that the full path to the file must be entered into this field with the filename.
5	Enter a value in the In Steps Of Field. This field determines how often the status fields (Chars Downloaded, Lines Downloaded, and Last OK Mem Address) are updated.
6	Ensure the Drct Dwnld New Code check-box is selected. When this check-box is selected, the target card's main memory EEPROMs are not erased prior to the commencement of downloading, and the firmware code subsequently downloaded is appended to the code already in main memory.
7	In the Download Lines field, enter the total number of lines to be downloaded from the file. if the number of lines to be downloaded is to the end of the file, the default value can be used (100000000).

D

Procedure CE. Continue the Firmware Download Process After an Interruption (cont'd)

Step	Action
8	In the Skip Lines Field, enter a value that is one less than the number of the first line of the file portion that you wish to download.
9	Click the Auto Download button to continue the firmware download process using the automatic mode. The firmware download process will proceed through the steps automatically. As each step begins, the appropriate button in the dialog box will appear active, with all other buttons de-emphasized (grayed out).
10	Firmware Download is considered complete and successful when the Cancel SWDL Mode button appears selected, and the message DONE is shown in the Response and Status fields. Perform one of the following actions depending on whether the process completes successfully, fails, or is interrupted: If the Firmware Download process successfully completes, continue with step 11. If the Firmware Download process fails, go to Procedure CF, Failure Recovery. If the Firmware Download process fails, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails. If the Firmware Download Process is interrupted again, return to the beginning of this procedure. If the Firmware Download process is interrupted, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails.
11	If you plan to download firmware to another NE, click the Reset button to reset the dialog box, then go to Procedure CD.

End of Procedure

Failure Recovery

The recovery process detailed in Procedure CF allows stepping backward through certain parts of the firmware download process to retry parts of the procedure, or even step backward through the entire process, thus restoring the firmware to its pre-upgrade version. Through the recovery process, options are offered to accept or decline each step.

Procedure CF. Failure Recovery

Step	Action

Note: Users of the Security class can perform this procedure.

Step	Action
1	Click the Abort button to ensure that the firmware download process has been stopped, then click the Recover button to initiate the recovery process.
2	Choose the recovery option that is appropriate: Choice — Description All Possible Steps — All recovery steps are presented, including steps that might not be necessary given the current state of the target card. Ones That Situation Requires — Only the necessary steps are presented.
3	Click YES to accept, or click Skip to decline each step in the process until the recovery process is complete. *Note:* If a particular step fails, the next step will still be offered to accept or decline. If you are not sure of the steps to accept, you can accept them all, as failure of any particular step will not cause a catastrophic problem. The possible firmware download recovery steps are as follows. Steps — Description ACTIVATE_SWDL_MODE — Activate firmware download mode. ACTIVATE_BTT_MODE — Activate bulk text transfer mode. CANCEL_BTT_MODE — Cancel bulk text transfer mode. COPY_BKUP_TO_MAIN — Copy firmware in backup memory to main memory. CANCEL_SWDL_MODE — Cancel firmware download mode.

End of Procedure

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App. E

NE Information - 55400/ 55409

This chapter provides information and procedures that are specific to the 55400/ 55409 Network Element.

Network Element Status

The software contains a dialog box that summarizes the status of the various equipment cards within a selected 55400/ 55409 NE. This dialog box presents a display which visually resembles the equipment panels of the various cards in the NE. The status summary display is as follows:

- *Network Element Status dialog box* - This dialog box contains some general status information for the selected NE, as well as panel displays for the various boards that are installed in the NE.

The following paragraph provides more information on the Network Element Status dialog box.

Network Element Status dialog box

The Network Element Status dialog box displays a summary of the status of the various boards of the selected NE. The dialog box contains panel displays which show the state of some of the indicators on the card's front panels. Figure 91 and Table DK briefly explain the Network Element Status dialog box.

This area functionally simulates the panel area of the selected NE. It shows the current status of the various boards in the NE via status indicators, which are a simulation of some of the LED indicators on the boards. If any of the cards are not present, the corresponding portion of this area will be blank.

Note: If the selected NE is unavailable, TimePictra will not be able to retrieve status information, and an error message will be shown in place of the status panel display.

Figure 91. Network Element Status Dialog Box

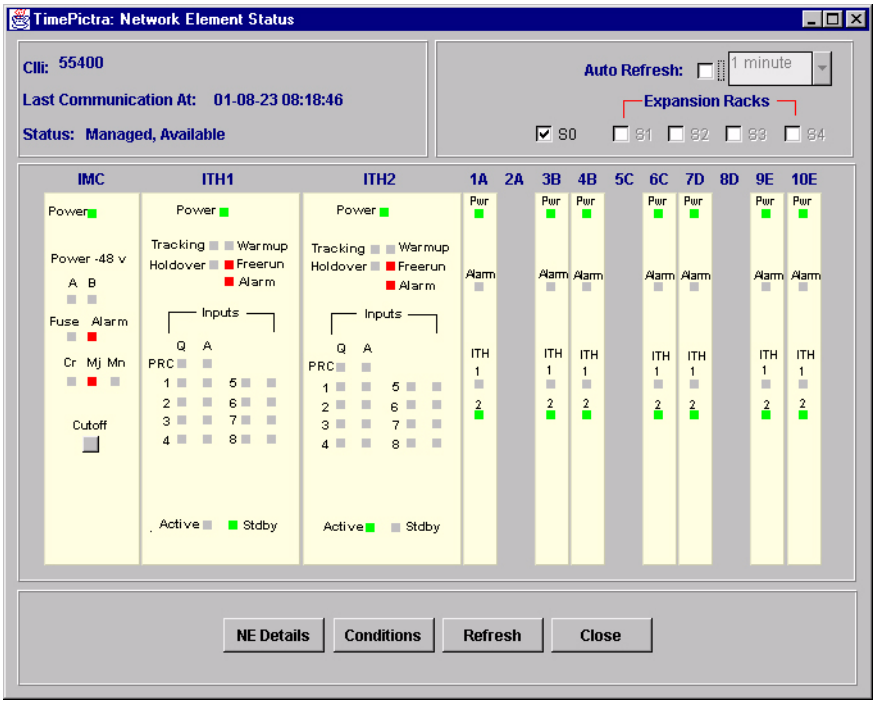

Table DK. Network Element Status Dialog Box Description

Setting/ Button	Description
CLLI	The CLLI code of the selected NE is shown here. This field cannot be edited; it reflects the NE that was selected on the synchronization network map or in the Launch Pad when the dialog box was invoked.
Status	The Status field reports whether or not the selected NE is currently Managed, Available, Unavailable, etc. If the NE is currently locked, as for modification, firmware download, etc., (Locked) also appears. The Last Communication At field shows the time and date when communications last took place with the selected NE.

Table DK. Network Element Status Dialog Box Description (cont'd)

Setting/ Button	Description
Auto Refresh	The Auto Refresh interval determines the frequency at which the status summary display is automatically updated. The default refresh interval is 60 seconds (1 minute) and the minimum refresh interval is 30 seconds. The status summary display can be updated at any time by clicking the Refresh button. If the Auto Refresh check-box is not selected, the display will not be automatically updated at the refresh interval, but can be manually refreshed by clicking the Refresh button. *Notes:* 1. A status summary display that is minimized (iconized) on the synchronization network map might pop up after the refresh interval expires. To avert this, deselect the Auto Refresh check-box before minimizing the status summary display. This also has the advantage of avoiding unnecessary queries to the NE. 2. If, upon refreshing the display, the software detects that the NE has been deleted, a warning message is displayed and then the summary display closes.
Expansion Rack	Selecting the S0 check-box displays the Output cards that are contained in the master rack. Likewise, selecting an Expansion Rack check-box ("S1," "S2," "S3," or "S4") invokes and displays an Expansion Rack dialog box containing the Output cards within those expansion racks. Deselecting the check-box closes the Expansion Rack dialog box. *Note:* If a given expansion rack is not present in the NE's configuration, the check-box for it will be inactive and appear grayed out.
NE Detail	Clicking the NE Details button invokes a dialog box in which additional details can be viewed pertaining to the selected NE, such as its CLLI code, type, and network address, as well as details for the various cards in the NE. *Note:* The information that appears in the details dialog box is retrieved from the inventory database.
Conditions	Clicking the Conditions button invokes a dialog box that displays a listing of the alarm and event conditions currently outstanding on the various cards in the NE. Refer to the NE's programming documentation for a listing of the event types with a brief description of each.

Status Panel Indicator Descriptions

Tables DL, DM, and DN briefly explain the status indicators shown for each card in the NE:

Table DL explains the status indicators shown for the IMC card.

Table DL. IMC Card Status Indicators

Indicator	Description
Alarm[ab]	When off, no alarm condition exists in the selected NE. When red, an alarm condition exists in the selected NE.
Mn[a]	When off, no minor alarm exists on the selected NE. When red, a minor alarm condition exists on the selected NE.
Mj[a]	When off, no major alarm exists on the selected NE. When red, a major alarm condition exists on the selected NE.
Cr[a]	When off, no critical alarm exists on the selected NE. When red, a critical alarm condition exists on the selected NE.
Cutoff	When an alarm condition exists and this Cutoff button is clicked, all audible alarms are silenced. *Note:* Only users of the Administrator and Security classes can use the Cutoff button.
Power	When off, power is not present. When green, power is present.
Power -48V A	When off, input is at normal voltage level. When red, input is below normal voltage level.
Power -48V B	When off, input is at normal voltage level. When red, input is below normal voltage level.
Fuse	When off, card fuse is not open. When red, IMC card fuse is open.

a.Click this indicator when it is lit to display more information on the alarms related to it.
b.TRSC card alarms currently have a Non-Alarm severity level, so these alarms will not be reported by this indicator.

Table DM explains the status indicators shown for the Clock cards.

Table DM. ITH Card Status Indicators

Indicator	Description
Alarm[a]	When off, no alarm condition exists in the ITH card. When red, an alarm condition exists in the ITH card.
Warmup	When off, the ITH card is not in a warm-up state. When yellow, the ITH card is warming up, and the card is not yet active.
Freerun	When off, the ITH card is not in a freerun state. When red, the ITH card is generating an output without using any tracking information from a reference source.

Table DM. ITH Card Status Indicators (cont'd)

Indicator	Description
Tracking	When off, the ITH card is not tracking a qualified input. When green, the ITH card is tracking a qualified input (i.e. the card has qualified an input and is using it as a system reference).
Holdover	When off, the system is not in a holdover state. When red, all inputs are lost or unacceptable, and the system is now using the internal oscillator which is using recent tracking data from a qualified reference to provide the output.
Active[b]	When off, the ITH card is not the synchronization signal source for all output cards. When green, the ITH card is the synchronization signal source for all output cards.
Standby	When off, the ITH card is not generating an output that is phase-locked to the output of the other (active) ITH card. When green, the ITH card is generating an output that is phase-locked to the output of the other (active) ITH card.
Power	When off, power is not present. When green, power is present.
PRC, 1-8	Each input signal has the following two indicators: Q - When green, the specified input signal is qualified for use as a system reference A - When green, the specified input signal is currently being used as a system reference.

a.Click this indicator when it is lit to display more information on the alarms related to it.
b.If this indicator is not green and the Standby indicator is green, then the card is in the Standby state. If the Active indicator is not green, the security user can click it to force the associated ITH card to the Active state, which in turn forces the other, currently active card to the Standby state.

Table DN explains the status indicators shown for the Output cards.

Table DN. Output Card Status Indicators

Indicator	Description
Pwr	When off, power is not present. When green, power is present.
Alarm[a]	When off, no alarm condition exists. When red, an alarm condition exists.
Fail	When off, no hardware or firmware failure has occurred on the output driver card. When red, a hardware or firmware failure has occurred on the output driver card.

Table DN. Output Card Status Indicators (cont'd)

Indicator	Description
ITH 1	When off, the output card is not receiving input signals from the ITH 1 card. When green, the output card is receiving the input signals from the ITH 1 card.
ITH 2	When off, the output card is not receiving input signals from the ITH 2card. When green, the output card is receiving the input signals from the ITH 2 card.

a.Click on this indicator when it is lit to display more information on the alarms related to it.

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the 55400/ 55409. The sub-sections within this section reflect the eight setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- NE (Network Element) settings
- IMC Card settings
- ITH Card settings
- Input settings
- Output settings
- Threshold settings
- Event settings
- Command settings

The figure, below, illustrates the Modify Configuration dialog box. The View Configuration dialog box is essentially identical, except no NE settings can be modified from within it.

The upper portion of the dialog box shows some basic information about the chosen NE such as, its CLLI Code, management status, location, etc., and contains eight context-switch buttons that determine the character of the lower portion of the dialog box. In the following figure, the Network context-switch button has been selected.

Figure 92. Modify Configuration Dialog Box

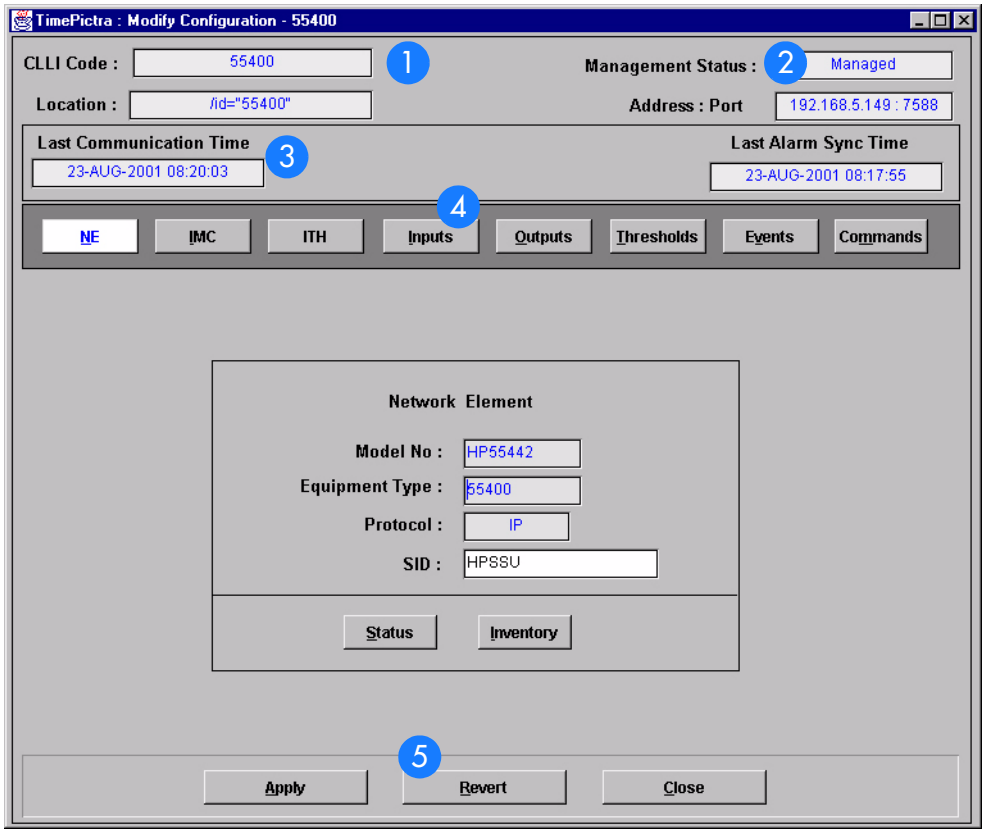

Table DO. Configuration:Modify Dialog Box Description

Item	Description
1	The CLLI Code of the selected NE as well as its location is shown here. These fields cannot be edited; they reflect the NE that is selected on the synchronization map when the dialog box is called up.
2	The management status of the selected NE is shown here. The status of the selected NE must be shown as Managed in order to modify the configuration parameters. The IP address and port of the selected NE is also shown. These fields cannot be edited.
3	Last Communication time shows the time and date when communications last took place with the selected NE. Last Alarm Sync Time displays the time and date when the last Alarm Synchronization process took place on the selected NE. Neither of these fields can be edited.
4	Click one of the eight context-switch buttons to determine the category of configuration settings that can be modified in the lower portion of the dialog box. The context-switch buttons are: NE, IMC, ITH, Inputs, Outputs, Thresholds, Events and Commands.

Table DO. Configuration:Modify Dialog Box Description

Item	Description
5	Click the Apply button to cause the configuration changes made in the bottom portion of the dialog box to take effect. Clicking the Revert button restores the configuration changes to those stored in the database, effectively cancelling the changes that were made prior to clicking Apply. *Note:* The Revert button applies only to the current screen. Once a context switch takes place, changes made to the previous category cannot be undone.

Each sub-section includes the following:

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL1 command or Keyword within the NE's documentation where more detailed information on the particular setting can be found.

Network Element Settings

The software communicates with NEs via a network connection. There are several networking settings that are configurable in this dialog box. Figure 93 shows the layout of the action panel for Network Element settings, and Table DP gives a brief description of each setting. The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 93. Action Panel - Network Element Settings

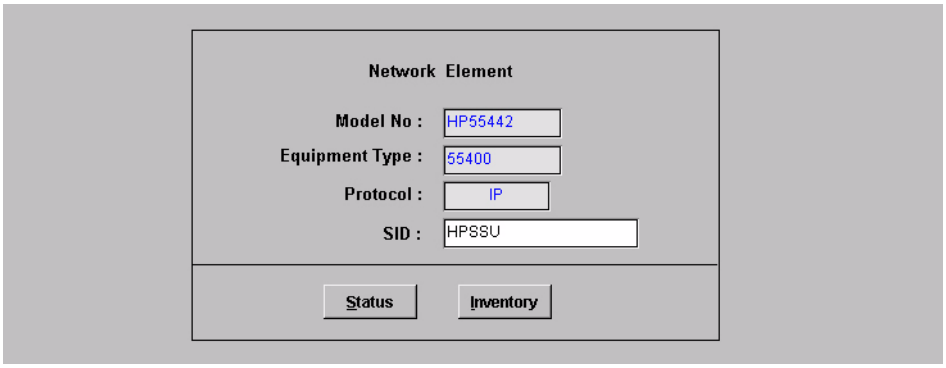

Table DP. Network Element Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Equipment Type	NE	The NE's equipment type.	RTRV-NETYPE (command)
Model No.	NE	The NE's model number.	RTRV-NETYPE - ALL
Protocol	NE	The networking protocol used by the NE.	*None*
SID	NE	The system identification code assigned to the NE.	SET-SID (command)
		Buttons	
Inventory	All	Invokes the NE Inventory dialog box. Refer to the chapter entitled Inventory Management for details on the NE Inventory dialog box.	*None*
Status	All	Invokes the Network Element Status dialog box. The section entitled Network Element Status in this chapter provides details on the Network Element Status dialog box.	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55400/ 55409 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

IMC Card Settings

An NE contains one Information Management Card (IMC) which is installed in the Master (S0) rack. The IMC card manages alarms from the 55400/ 55409 System, and provides local and Ethernet LAN communication interfaces. The local communication interface is a serial data port. There are several IMC Card settings pertaining to the local serial data port that are configurable in this dialog box. Figure 94 shows the layout of the action panel for IMC Card settings, and Table DQ gives a brief description of each setting. The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 94. Action Panel - IMC Card Settings

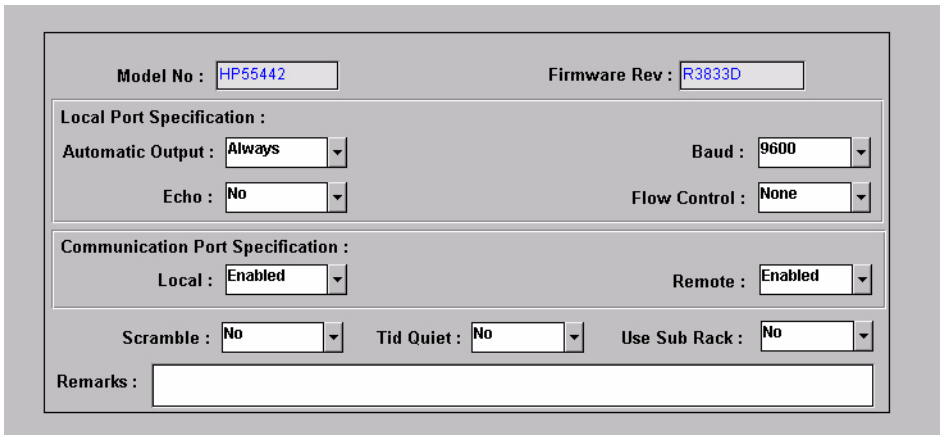

Table DQ. IMC Card Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Automatic Output	IMC	Sets the local port to report automatic messages always, never, or only when logged into the local port.	LCLAO (keyword)
Baud	IMC	Sets the baud rate on the local port.	LCLBAUD (keyword)
Echo	IMC	Tells the system whether or not to echo commands to the local terminal.	LCLECHO (keyword)
Firmware Rev.	IMC	The firmware revision code of the IMC card. This field is not editable.	RTRV-NETYPE (command)
Model No.	IMC	The model number of the IMC card. This field is not editable.	RTRV-NETYPE-ALL (command)
Remarks	IMC	A text field for entering notes (remarks) concerning the IMC card. *(TimePictra database only)*	*None*

Table DQ. IMC Card Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Scramble	IMC	Tells the system whether or not an encryption for communications to and from the 55400/ 55409 is allowed. This value is determined before the Manage Operation and cannot be changed after "Manage".	SCRAMBLE (keyword)
TID Quiet	IMC	Tells the system whether or not to suppress the DENY response that is normally generated when the target identifier <tid> specified in the current command does not match the current system identifier <sid>.	TIDQUIET (keyword)
Use Sub Rack	IMC	Tells IMC that Sub Racks are attached to the main unit.	USESUBRCK (keyword)
Local	IMC	Used to enable or disable local communication, if it is force-enabled using the Hardware Enable switch on IMC.	LOCAL (keyword)
Remote	IMC	Shows the status of the remote port of the IMC.	REMOTE (keyword)
Flow Control	IMC	Affects the control of data flow over the local serial data port on IMC card. If set to None, flow control is not incorporated. If set to Hardware, the hardware CTS/RTS (clear to send/ request to send) signals are incorporated for flow control.	

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55400/ 55409 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

ITH Card Settings

ITH cards perform the following functions; input qualification, monitoring, input selection and rearrangement, filtering, tracking, holdover and switch-over. Four types of ITH cards are available:

- ITH Card - Stratum 2
- ITH Card - Transit Node
- ITH Card - Local Node
- ITH Card - Stratum 2-Rubidium

Two ITH cards are required for redundancy; oscillator types can be mixed. Each ITH card receives input reference signals from the Input/Alarm Connector card, determines their quality for use by the system, and selects the most appropriate input signal to use as the active reference. During normal operation, the active clock tracks the active input signal, and produces a precise frequency for the Output cards based on the input reference. If the input reference is disqualified, the ITH card selects another qualified input signal as the reference. If all input references fail, the ITH card goes into Holdover mode using its own oscillator as the system reference.

There are several ITH card settings that are configurable in this dialog box. Figure 95 shows the layout of the action panel for ITH Card settings, and Table DR gives a brief description of each setting. The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 95. Action Panel - ITH Card Settings

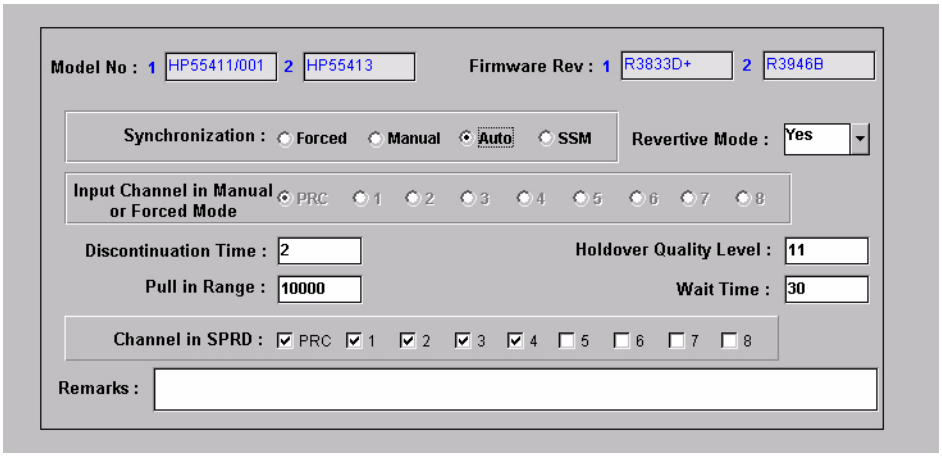

Table DR. ITH Card Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Channel in SPRD	Clock	Defines which channels will be used for the Spread measurement.	SPRDCHN (keyword)
Discontinuation Time	Clock	Determines the number of consecutive seconds with severe errors the system will wait before disqualifying the channel.	DSCTIME (keyword)
Firmware Rev.	Clock	The firmware revision codes of the Clock 1 and Clock 2 cards. This field is not editable.	RTRV-NETYPE-ALL (command)
Holdover Quality Level	Clock	Defines the quality assumed for the clock card in SSM mode.	HFQLEVL (keyword)
Input Channel in Manual or Forced Mode	Clock	Specifies which channel is to be used in manual or forced synchronization mode.	MANCHAN (keyword)
Model No.	Clock	The model numbers of the Clock 1 and Clock 2 cards. This field is not editable.	RTRV-NETYPE-ALL (command)
Pull in Range	Clock	Controls how far the input can be off from the absolute frequency from the local oscillator before it is disqualified.	PIRANGE (keyword)
Revertive Mode	Clock	Controls how an input reference is chosen in automatic and manual mode. If set to NO, the currently selected active input will remain selected until it is disqualified even if an input with a higher priority becomes qualified. If set to YES, the NE will always select the qualified input with the highest priority as the active input. Revertive mode is only applicable to Auto and SSM synchronization.	REVERT (keyword)
Remarks	Clock	A text field for entering notes (remarks) concerning the Clock card. *(TimePictra database only)*	*None*
Synchronization	Clock	Controls how the input channel is chosen as a synchronization source. When more than one input is qualified, synchronization determines the method used to choose which qualified input to use as a reference.	SYNCMDE (keyword)
Wait Time	Clock	Sets the period of time (wait time) an input channel is provided to re-establish all of its operating parameters before it will be considered for use as a synchronization source.	WTRSS (keyword)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55400/55409documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

Input Settings

A 55400 can accept up to nine reference input signals. The PRC (primary reference clock) input, can be a 5MHz or 10MHz signal. The remaining inputs can be either 2048Kbps or 2048 KHz signals.

There are several settings related to the selection, qualification and measurement of reference input signals that are configurable in this dialog box and the table BU gives a brief description of each setting.

- The Channel setting under Channel Selector in the following table selects the specific input channel to which the remainder of the settings apply.
- The Channel-Specific Settings apply specifically to the input channel selected with the Channel parameter.

The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 96. Action Panel - Input Settings - Inputs ITH-1 through ITH-8

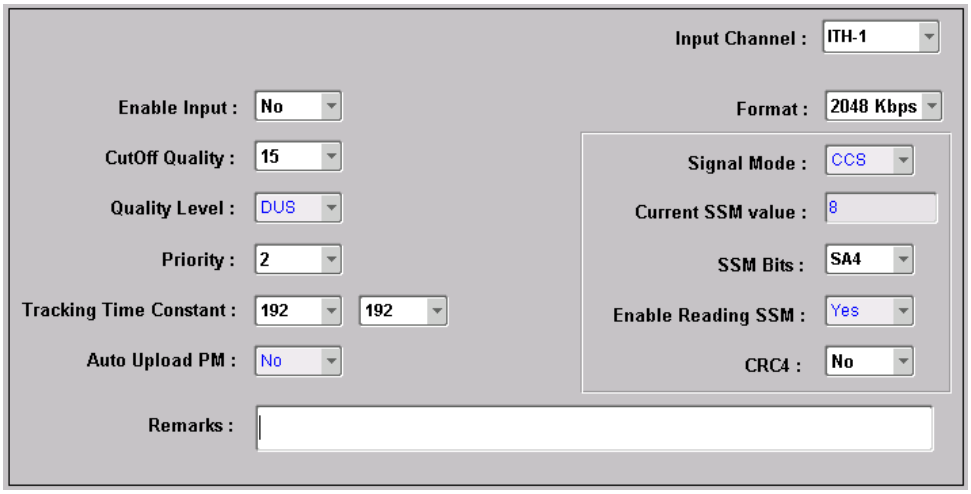

Figure 97. Action Panel - Input Settings - PRC Input

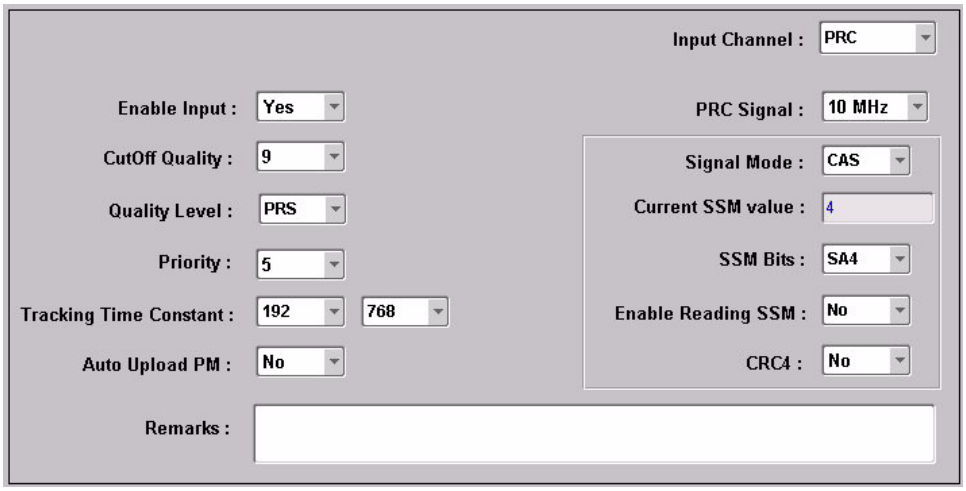

Table DS. Input Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Channel Selector	
Input Channel	Input	The selection made using this drop-down list specifies the input channel to which the remainder of the channel-specific parameters in the lower portion of the action panel apply.	*None*
		Channel-Specific Settings[b]	
Auto Upload PM	Input	Inhibits or allows automatic display of performance data for the selected input channel. Default is NO.	AUTOPM (keyword)
CRC4	Input	Determines if the system should check the selected input channel for valid CRC4 information. If correct, CRC4 information is not detected and the input is disqualified. If set to YES, CRC4 input criteria checking is enabled. If set to NO, CRC4 input criteria checking is disabled. The default is NO.	CRC4 (keyword)
Current SSM Value	Input	The current SSM value from the selected input channel.	CURRSSM (keyword)
Cutoff Quality	Input	Specifies the minimum SSM quality level required in order for the selected input to be used. SSM sync mode must be enabled for this selection to be functional.	QCUTOFF (keyword)

Table DS. Input Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Enable Input	Input	Controls whether or not the selected input will be considered as a reference source. If set to YES, the selected input channel will be enabled and can be considered as a reference source. If set to NO, the selected input channel will not be considered a reference source. The default is YES.	ENABLE (keyword)
Enable Reading SSM	Input	Enables or disables the reading of the SSM bit on the selected input channel.	SSMENB (keyword)
PRC Signal	Input	Specifies either a 5 MHz or 10 MHz signal on the PRC input channel.	PRC5MHZ (keyword)
Priority	Input	Specifies a priority for the selected input channel. The channel priority is used by the selection algorithm in determining which channel will be tracked. *Note:* For all channels with the same priority value, the lowest numbered channel will be considered to have top priority.	PRIORITY (keyword)
Quality Level	Input	Specifies the assumed SSM quality level for the selected input channel. This assumed SSM level is used when SSM has been disabled.	QLEVEL (keyword)
Remarks	Input	A text field for entering notes (remarks) concerning the selected input channel. *(TimePictra database only)*	*None*
Signal Mode	Input	Specifies the input signal mode. E1 input signals can be monitored for correct CCS/CAS information. If correct is not detected, the input is disqualified. This setting is ignored for non E1 format input signals. If CCS is selected, the system will monitor the selected input for correct Common Channel Signalling information. If CAS is selected, the selected input is monitored for Correct Associated Signalling information. The default is CCS.	SIGMODE (keyword)
SSMbits	Input	Selects the bit to use for the synchronization status in the non-frame aligned word of the specified input signal. The possible settings include: SA4 (the default), SA5, SA6, SA7 and SA8.	SSMBIT (keyword)

Table DS. Input Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Tracking Time Constant	Input	First sets the loop tracking time constant for the selected input once the system is fully warmed up. The Valid Time Constants are 192, 768, 3072, 12288 and 49152. The default depends on the type of ITH card installed: - 192 for Local or Transit Node ITH cards - 768 for Stratum 2 Quartz ITH card - 3072 for Stratum 2 Rubidium ITH card Second, sets the time constant for the secondary oscillator. It applies only to the ITH card or different oscillator mixed on one system.	TCONST/ TCONTSEC (keyword)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55400/ 55409 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Channel-Specific Settings* apply specifically to the input channel specified by the Channel Selector.

Output Settings

An NE can contain a master rack and four expansion racks. Each rack can contain up to five Output cards, or ten in protected mode where Output cards are installed in redundant pairs. Each Output card provides signals to 16outputs.

Output cards are typically installed in redundant pairs. Paired slots in the racks are labeled A, B, C, and D, with redundant boards being installed in each pair of slots. If boards are not installed as redundant pairs, only one board will be installed per pair of slots.

There are several Output card settings that are configurable in this dialog box. Figure 98 shows the layout of the action panel for Output settings, and Table DT gives a brief description of each setting.

- The settings under Rack Selector and Card Selector in the following table are used to select a specific Output card or redundant pair of Output cards to which the remainder of the settings apply. For example, if you want to modify settings for the Output cards in the slot labeled A in the master rack, select the Master radio button, and select OUTA in the Card drop-down list.

- The settings under Card-Specific Settings affect all outputs of the selected Output card or pair of redundant Output cards.

- Port-Specific Settings apply independently to each output port of the selected Output card. The output ports are shown in the left-most column of the scroll box in the dialog box. Those settings in the same row as the listed port apply to that port. Note that this portion of the dialog box can be scrolled to show all output ports, up to a total of sixteen ports per card.

The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 98. Action Panel - Output Settings

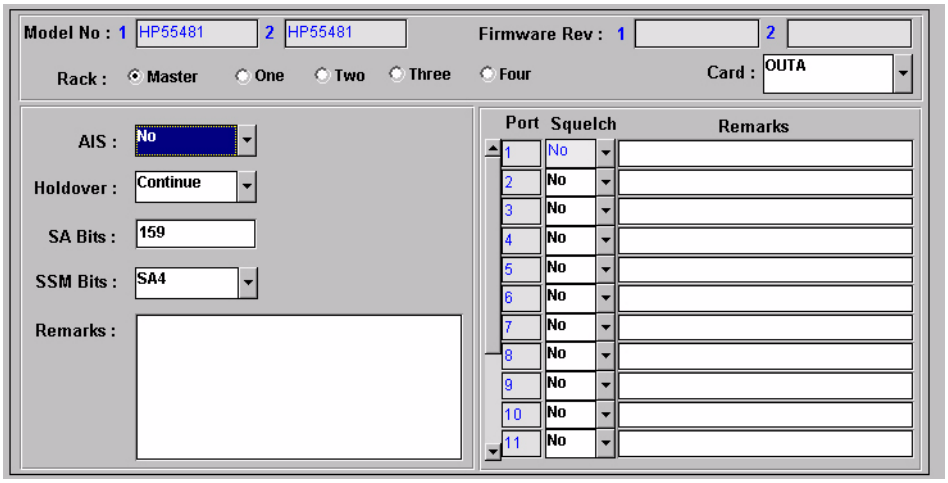

Table DT. Output Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Rack Selector	
Rack	Output	The selection made using these radio buttons specifies the rack containing the card to which the reminder of the settings apply.	*None*
		Card Selector	
Card	Output	The selection made in this drop-down list specifies the card to which the remainder of the card-specific parameters in the lower portion of the action panel apply.	*None*
		Card-Specific Settings[b]	
AIS	Output	Specifies whether the selected Output card generates AIS, or the usual formatted signal.	AIS (keyword)
Firmware Rev.	Output	The firmware revision codes of the selected Output card pair.	RTRV-NETYPE-ALL (command)
Holdover	Output	Controls the selected Output card's operation when the system is in holdover.	HLDACT (keyword)
Model No.	Output	The model numbers of the selected Output card pair.	RTRV-NETYPE-ALL (command)
Remarks	Output	A text field for entering notes (remarks) concerning the selected Output card. *(TimePictra database only)*	*None*
SSMBits	Output	Selects the bit to use for synchronization status in the non-frame aligned word of the specified Output Card's output signal. The possible settings include: SA4 (the default), SA5, SA6, SA7 and SA8.	SSMBIT (keyword)
SA Bits	Output	Sets certain bits in the non-frame aligned word on 2048 Kbps outputs.	SABITS (keyword)
		Port Selector	
Port	Output	The number in this column indicates the port to which the remainder of the port-specific parameters in the row apply.	*None*
		Port-Specific Settings[c]	
Squelch	Output	Specifies whether or not the selected output port is to be squelched.	SQUELCH (keyword)

Table DT. Output Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Remarks	Output	A text field for entering notes (remarks) concerning the selected output port. *(TimePictra database only)*	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the Time Hub 55400/55409 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Card-Specific Settings* apply specifically to the output card specified by the Card Selector.
c.*Port-Specific Settings* apply specifically to the output port specified by the Port Selector.

Threshold Settings

The 55400/ 55409 continuously makes phase deviation measurements on each input reference. Network performance parameters based on these measurements are computed and updated periodically. Depending on the type of measurement, the time periods are either averaging time or observation time and are performed on a single input port or across all enabled input ports. Measurement thresholds can be set for each averaging or observation time.

The measurement threshold settings are configurable in this dialog box. Figure 99 shows the layout of the action panel for the threshold settings, and Table DU gives a brief description of each setting.

- The Channel setting under Channel Selector in the following table selects the specific input channel to which the remainder of the settings apply.
- The Channel-Specific Settings apply specifically to the input channel selected with the Channel parameter.

The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 99. Action Panel - Threshold Settings

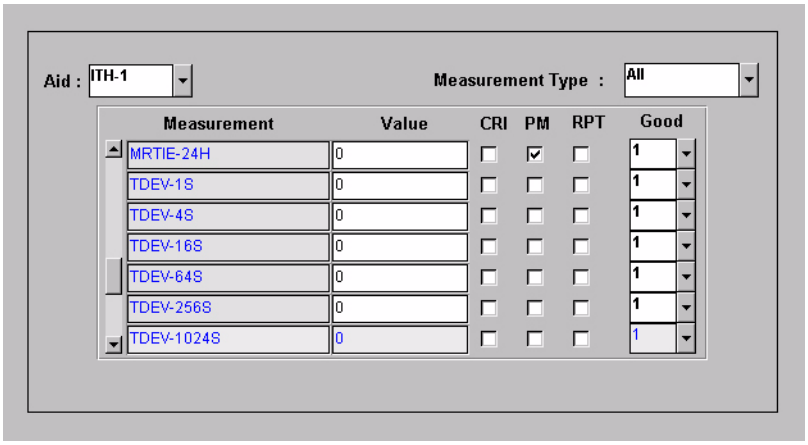

Table DU. Threshold Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Channel Selector	
Aid		The selection made in this drop-down list specifies the input channel to which the remainder of the channel-specific parameters in the lower portion of the action panel apply.	*None*
		Channel-Specific Settings[b]	
CRI		Determines whether or not the input port is disqualified if the threshold is exceeded. The setting does not apply to SPRD measurement type	ED-SYNC (command)
Good		The number of consecutive good measurements that must occur following a bad measurement before an input signal can be qualified and for the INMEAS event to be cleared.	ED-SYNC (command)
Measurement Type		This selection acts as a filter to display only certain measurement types, or all measurement types. *(TimePictra database only)*	*None*
Measurement		The description in this column indicates the threshold to which the setting in the Value column applies.	SET-TH (command)
PM		If selected, the data for the specified Averaging/ Observation time will be uploaded to the TimePictra software if the Auto Upload is set. Refer to Auto Upload PM setting under Input Settings in this chapter.	ED-SYNC (command)
Remarks		A text field for entering notes (remarks) concerning the threshold settings for the selected input channel. *(TimePictra database only)*	None
RPT		Tells the system to display an Automatic Message if the threshold is exceeded.	ED-SYNC (command)
Value		The value of the selected threshold level.	SET-TH (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55400/ 55409documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Channel-Specific Settings* apply specifically to the input channel specified by the Channel Selector.

Event Settings

The NE generates event messages to report ongoing or transient conditions that have occurred or are occurring within the NE or the network. Events are classified as either alarms or non-alarmed events.

Events have default severity levels assigned to them, and the severity level of certain events can be changed in this dialog box. Figure 100 shows the layout of the action panel for Event settings, and Table DV gives a brief description of each setting. The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 100. Action Panel - Event Settings

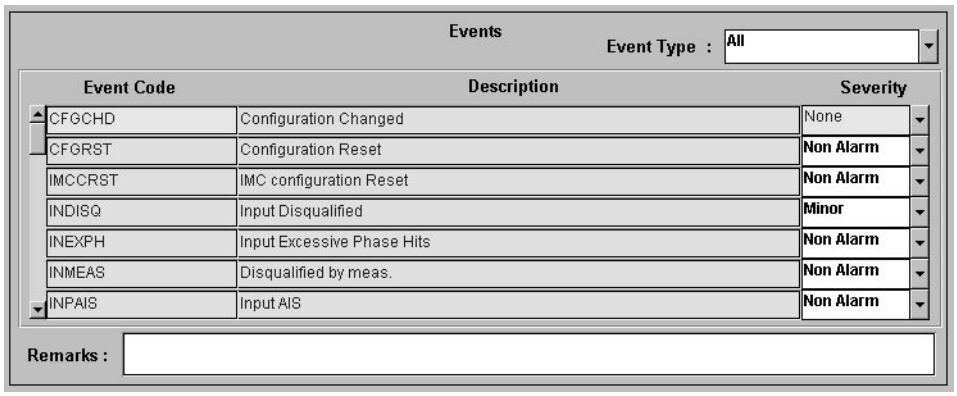

Table DV. Event Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Event Type		This selection acts as a filter to display only certain event types, or all event types. *(TimePictra database only)*	*None*
Event Code		This column shows all the event codes of the types selected under Event Type, above. They are listed in alphabetical order.	SET-ATTR (command)
Description		This column provides a short description of the associated event code.	*None*
Severity		The severity of the alarm or event indicated in the row. The severity can be changed for certain events.	SET-ATTR (command)
Remarks		A text field for entering notes (remarks) concerning the event settings. *(TimePictra database only)*	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55400/ 55409 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

TL1 Command Settings

The software communicates with the NEs it manages using TL1 commands. Users can also communicate directly with NEs by sending TL1 commands and interpreting TL1 responses via the NE's local port using a dedicated terminal or craft terminal software.

Every TL1 command has a default security level assigned to it. The security level determines the user class that is authorized to execute a given command. The security level of certain commands can be changed in this dialog box. Figure 101 shows the layout of the action panel for TL1 Command settings, and Table DW gives a brief description of each setting. The COMMAND column in the table provides a reference point in the 55400/ 55409 documentation where more detailed information can be found.

Figure 101. Action Panel - TL1 Command Settings

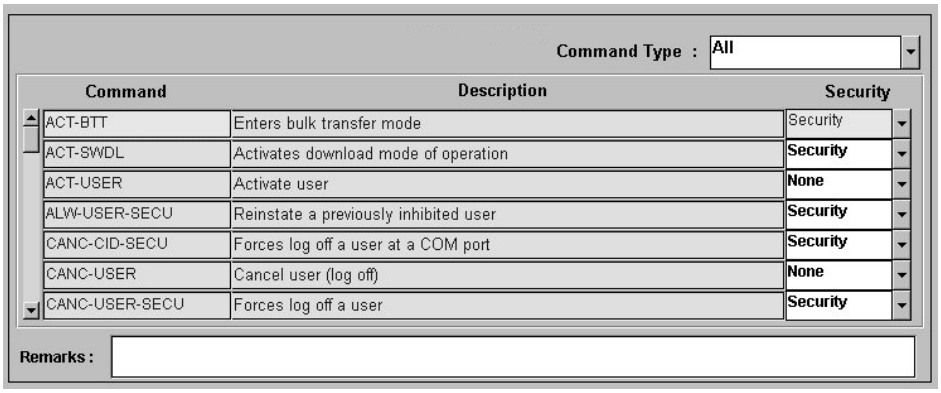

Table DW. TL1 Command Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Command Type		This selection acts as a filter to display only certain command types, or all command types. *(TimePictra database only)*	*None*
Command		This column shows all the available TL1 commands. They are listed in alphabetical order.	ED-CMD-SECU (command)
Description		This column includes a short description of the TL1 command.	*None*

Table DW. TL1 Command Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Security		This column shows the security level assigned to the command, which can be changed for certain commands.	ED-CMD-SECU (command)
Remarks		A text field for entering notes (remarks) concerning the command settings. *(TimePictra database only)*	*None*

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55400/ 55409 documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

Firmware Download

The full firmware download process consists of nine operations, which correlate to buttons in the Firmware Download dialog box. The nine operations are summarized in the following bulleted list:

- Activate SWDL Mode - The specified card on the specified NE is put into firmware download mode, also known as SWDL mode. In this mode, the card ceases any activity that is not associated with firmware downloading, and accepts only commands associated with the firmware download process.
- Copy SFWR to Bkup - The version of firmware currently on the card's main memory EEPROMs, the version to be upgraded, is copied to the backup memory EEPROMs on the card.
- Verify Bkup - The card performs a verification check on the firmware code in backup memory to ensure that it is not corrupted.
- Delete Main - The card's main memory EEPROMs are erased.
- Activate BTT Mode - The card is put into bulk text transfer mode. In this mode, the card is ready to accept segments of firmware code.
- Dwnld New Code - Lines of code - one line at a time - are transferred from a firmware file, which is accessible on the network, to the card's main memory EEPROMs. As each line transfers successfully, the next line is transferred until the end of the firmware file is reached, or until certain parameters set within the Firmware Download dialog box dictate that the transfer must end.
- Cancel BTT Mode - The card is taken out of bulk text transfer mode.
- Verify Main - The card performs a verification check on the new firmware code in main memory to ensure the validity of the code instructions. The TimePictra system makes no attempt to verify firmware files stored on it; this is the first time that the validity of the code instructions is verified.
- Cancel SWDL Mode - The card is taken out of firmware download mode

(SWDL mode), hence, normal card operation resumes. After this step in the process completes successfully, the card begins functioning using the upgraded firmware.

Recovery from Firmware Download Process Failure

There are two recovery options. The recovery process offers a choice to accept or decline each step. The two options are as follows:

- All Possible Steps - If this recovery option is chosen, all possible recovery steps are presented, and it is up to the user to accept or decline the steps that might not be necessary. The possible recovery steps, which will always be presented when All Possible Steps is chosen, are as follows:
  - ACTIVATE_SWDL_MODE - activate firmware download mode
  - ACTIVATE_BTT_MODE - activate bulk text transfer mode
  - CANCEL_BTT_MODE - cancel bulk text transfer mode
  - COPY_BKUP_TO_MAIN - copy firmware in backup memory to main memory
  - CANCEL_SWDL_MODE - cancel firmware download mode
- Ones That Situation Requires - If this recovery option is chosen, the user is presented only with the steps that are necessary, given the current status of the card. For example, if the firmware download process fails at the Verify Main stage, the ACTIVATE_SWDL_MODE, ACTIVATE_BTT_MODE, and CANCEL_BTT_MODE steps are presented, since the firmware download process had already cancelled BTT mode, and the card was not yet taken out of SWDL mode. The user is still given the option to accept or decline each step presented.

Recovery from Firmware Download Process Interruptions

It is possible that the firmware download process can be interrupted, as when a network failure or other abnormal condition occurs. In such situations, the firmware code already downloaded to the card's main memory is typically valid, albeit incomplete. The software accommodates these situations.

A firmware download mode exists in which you can specify that partial code be appended to the existing code in the card's main memory (in a normal firmware download situation, the card's main memory is erased prior to the commencement of downloading).

Download Firmware

Use Procedure CG if totally replacing the current firmware on the target card. This procedure accommodates the situation where the contents of the firmware file are

downloaded in full, as well as the situation where a portion of the firmware file is downloaded.

To append code to the firmware already stored on the target card, as when continuing the download process after an interruption, go to Procedure CH, entitled Continue the Firmware Download Process After an Interruption.

Notes:

1. A normal firmware download scenario might involve downloading firmware to all three applicable cards; IMC, Clock-1, and Clock-2 on an NE. If this is the case, it is recommended that the firmware upgrade be downloaded to the NIMC card first.
2. If downloading firmware to the Clock cards, note that firmware can only be downloaded to the Clock card that is in standby mode. If the target Clock card is not in standby mode, force the other card to the active state, thereby effectively forcing the target card to the standby state. Refer to the section entitled Network Element Status in the appendix entitled NE Information - Time Hub 5500 for information on forcing an Clock card active.

Procedure CG. Downloading Firmware

Step	Action
Notes: 1. Users of the Security class can perform this procedure. 2. The target NE must be remanaged before the beginning of the firmware download process, and then again after the firmware download process has completed. This action synchronizes the firmware version number stored in the database with the firmware version number in the target NE. It also synchronizes the alarms in the NE with the alarms in the database.	
1	Ensure the firmware code to be downloaded is stored as a file on the TimePictra workstation. Also, note the following: Record the file name as well as the full directory path to the file. You will need to enter it in the procedure. Ensure the Security-class user (sec) is the owner of the firmware file and has read permission on the file. If only a portion of the file will be downloaded, determine the line number of code to be downloaded, as well as the number of lines to be downloaded. Ensure the validity of the firmware code instructions to be downloaded. TimePictra takes no automatic measures to ensure the validity of the firmware code before it is downloaded.
2	In the synchronization map or Launch Pad, click on the NE that is the intended target for the firmware download.

Procedure CG. Downloading Firmware (cont'd)

Step	Action
3	Invoke the Firmware Download dialog box: *Synchronization Map* - Click TimePictra from main menu, then click Configuration, and then Firmware Download. *Launch Pad* - Choose Firmware Download... from the Config menu.
4	Choose the Card Aid from the drop-down list in the Aid field. This is the rack and identifier of the target card. The possible selections are in the following form: *rack-card* where *rack* is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and *card* is the identifier of the card to which the firmware is to be downloaded.
5	Enter the name of the firmware code file in the Firmware Code File field. This is the name of the file containing the firmware code to be downloaded. Note that the full path to the file must be entered into this field with the filename.
6	Enter a value in the In Steps Of field. This field determines how often the status fields: Chars Downloaded, Lines Downloaded, and Last OK Mem Address, are updated.
7	Ensure the Drct Dwnld New Code check-box is not selected. When this check-box is not selected, the target card's main memory EEPROMs are erased prior to the commencement of downloading.
8	If the entire file is to be downloaded, make no changes to the Download Lines and Skip Lines fields and go to Step 9. If a portion of the file is to be downloaded, change those fields as follows: In the Download Lines Field, enter the total number of lines to be downloaded from the file. For example, if the entire file consists of 10000 lines and the portion of it you wish to download is 756 lines long, enter 756. In the Skip Lines Field, enter a value that is one less than the number of the first line of the file portion that you wish to download. For example, if the portion of a file you wish to download begins on line 100 of the file, enter 99.

Step	Action
9	Begin the firmware download process using either automatic or manual mode: *Note:* The paragraph entitled The Firmware Download Process at the beginning of this section describes each step in the firmware download process. To use the Automatic Mode, click the Auto Download button. The firmware download process will proceed through the steps automatically. As each step begins, the appropriate button in the dialog box will appear active, with all other buttons de-emphasized (grayed out). To use the Manual Mode, click the Activate SWDL Mode button. In manual mode, click each button in the manual operation portion of the dialog box (buttons labeled `Step` *x*) to step through the process. As each step is completed, a confirmation message will be shown in the "Response and Status" fields. Ensure the current step completes with a status of DONE before going to the next step.
10	Firmware Download is considered complete and successful when the Cancel SWDL Mode button appears active, and the message DONE is shown in the Response and Status fields. Perform one of the following actions depending on whether the process completes successfully, fails, or is interrupted: If the Firmware Download process successfully completes, continue with step 11. If the Firmware Download process fails, go to Procedure CI, Failure Recovery. If the Firmware Download process fails, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails. If the Firmware Download Process is interrupted, go to Procedure CH, Continue the Firmware Download Process After an Interruption. If the Firmware Download process is interrupted, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails.
11	If you plan to download firmware to another NE, click the Reset button to reset the dialog box, then repeat this procedure as necessary.

End of Procedure

Continue the Firmware Download Process After an Interruption

Procedure CH assumes that the firmware download process was interrupted.

Note: **In order to continue the firmware download process after an interruption, the number of lines of code already downloaded must be known. This can be calculated from the Lines Downloaded and Skip Lines fields in the Firmware Download dialog box. Note that these fields might be reset when Reset is clicked, or the dialog box is**

closed.

If the last line to be downloaded is not the end of the file, determine exactly how many more lines from the file need to be downloaded.

Procedure CH. Continue the Firmware Download Process After an Interruption

Step	Action

Notes:
1. Users of the Security class can perform this procedure.
2. The target NE must be remanaged before the beginning of the firmware download process, and then again after the firmware download process has completed. This action synchronizes the firmware version number stored in the database with the firmware version number in the target NE. It also synchronizes the alarms in the NE with the alarms in the database.

1	In the synchronization map or Launch Pad, click on the NE that is the intended target for the continuation of the firmware download.
2	Invoke the Firmware Download dialog box: *Synchronization Map* - Click the Firmware Download menu item from the TimePictra menu. *Launch Pad* - Choose Firmware Download... from the Config menu.
3	Choose the Card Aid from the drop-down list in the Aid field. This is the rack and identifier of the target card. The possible selections are in the following form: *rack-card* where *rack* is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and *card* is the identifier of the card to which the firmware is to be downloaded.
4	Enter the name of the firmware code file in the Firmware Code File field. This is the name of the file containing the firmware code to be downloaded. Note that the full path to the file must be entered into this field with the filename.
5	Enter a value in the In Steps Of Field. This field determines how often the status fields (Chars Downloaded, Lines Downloaded, and Last OK Mem Address) are updated.
6	Ensure the Drct Dwnld New Code check-box is selected. When this check-box is selected, the target card's main memory EEPROMs are not erased prior to the commencement of downloading, and the firmware code subsequently downloaded is appended to the code already in main memory.
7	In the Download Lines field, enter the total number of lines to be downloaded from the file. if the number of lines to be downloaded is to the end of the file, the default value can be used (100000000).

Procedure CH. Continue the Firmware Download Process After an Interruption (cont'd)

Step	Action
8	In the Skip Lines Field, enter a value that is one less than the number of the first line of the file portion that you wish to download.
9	Click the Auto Download button to continue the firmware download process using the automatic mode. The firmware download process will proceed through the steps automatically. As each step begins, the appropriate button in the dialog box will appear active, with all other buttons de-emphasized (grayed out).
10	Firmware Download is considered complete and successful when the Cancel SWDL Mode button appears selected, and the message DONE is shown in the Response and Status fields. Perform one of the following actions depending on whether the process completes successfully, fails, or is interrupted: If the Firmware Download process successfully completes, continue with step 11. If the Firmware Download process fails, go to Procedure CI, Failure Recovery. If the Firmware Download process fails, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails. If the Firmware Download Process is interrupted again, return to the beginning of this procedure. If the Firmware Download process is interrupted, the following information can be helpful in diagnosing the failure: The information displayed in the Chars Downloaded, Lines Downloaded, and Last OK Mem Address fields, and the error message text that appears when the process fails.
11	If you plan to download firmware to another NE, click the Reset button to reset the dialog box, then go to Procedure CG.

End of Procedure

Failure Recovery

The recovery process detailed in Procedure CI allows stepping backward through certain parts of the firmware download process to retry parts of the procedure, or even step backward through the entire process, thus restoring the firmware to its pre-upgrade version. Through the recovery process, options are offered to accept or decline each step.

Procedure CI. Failure Recovery

Step	Action

Note: Users of the Security class can perform this procedure.

Procedure CI. Failure Recovery (cont'd)

Step	Action
1	Click the Abort button to ensure that the firmware download process has been stopped, then click the Recover button to initiate the recovery process.
2	Choose the recovery option that is appropriate: Choice — Description All Possible Steps — All recovery steps are presented, including steps that might not be necessary given the current state of the target card. Ones That Situation Requires — Only the necessary steps are presented.
3	Click YES to accept, or click Skip to decline each step in the process until the recovery process is complete. *Note:* If a particular step fails, the next step will still be offered to accept or decline. If you are not sure of the steps to accept, you can accept them all, as failure of any particular step will not cause a catastrophic problem. The possible firmware download recovery steps are as follows. Steps — Description ACTIVATE_SWDL_MODE — Activate firmware download mode. ACTIVATE_BTT_MODE — Activate bulk text transfer mode. CANCEL_BTT_MODE — Cancel bulk text transfer mode. COPY_BKUP_TO_MAIN — Copy firmware in backup memory to main memory. CANCEL_SWDL_MODE — Cancel firmware download mode.

End of Procedure

App. F

NE Information - TimeSource 3000 and TimeSource 3500

This chapter provides information and procedures that are specific to the TimeSource 3000 and TimeSource 3500 Network Elements.

Network Element Status

The software contains a dialog box that summarizes the status of a selected TimeSource 3000 or 3500 NE. This dialog box, the Network Element Status dialog box, presents a display which visually resembles the front panel of the NE. The dialog box view can also be changed to show details of the satellites being tracked by the NE. The following provides more information on the Network Element Status dialog box.

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Network Element Status dialog box

The Network Element Status dialog box displays details of the status of the selected NE, and of the satellites being tracked by the NE. Figures 102, 103, and 104 and Table DX briefly explain the Network Element Status dialog box for the NEs.

Figure 102. TS 3000 Network Element Status Dialog Box - Panel Details

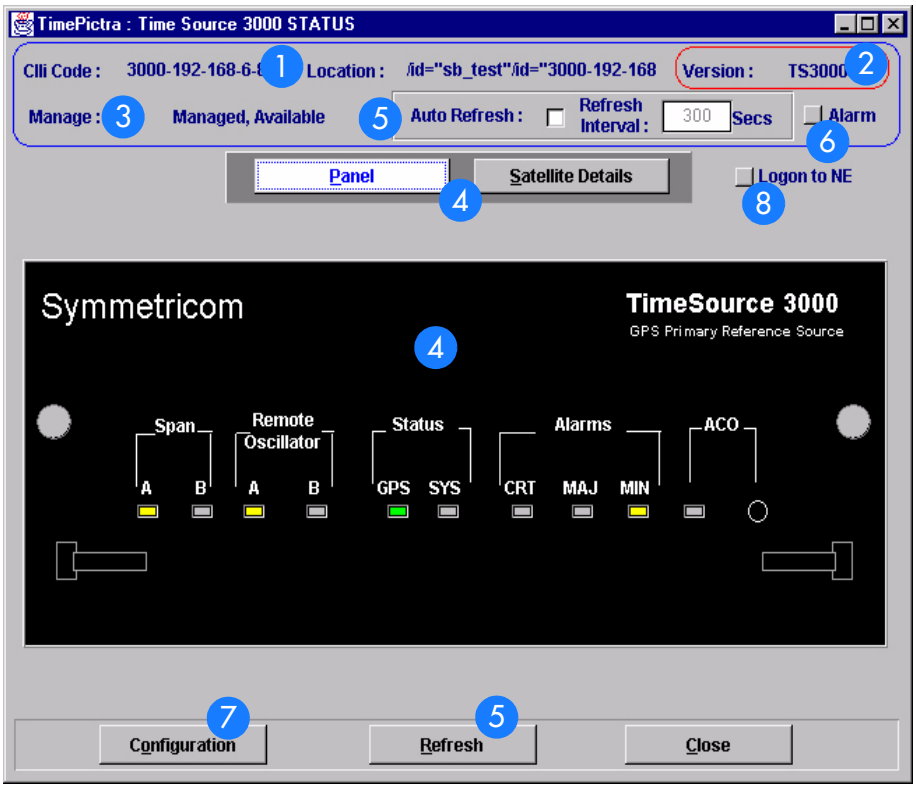

Figure 103. TS 3500 Network Element Status Dialog Box - Panel Details

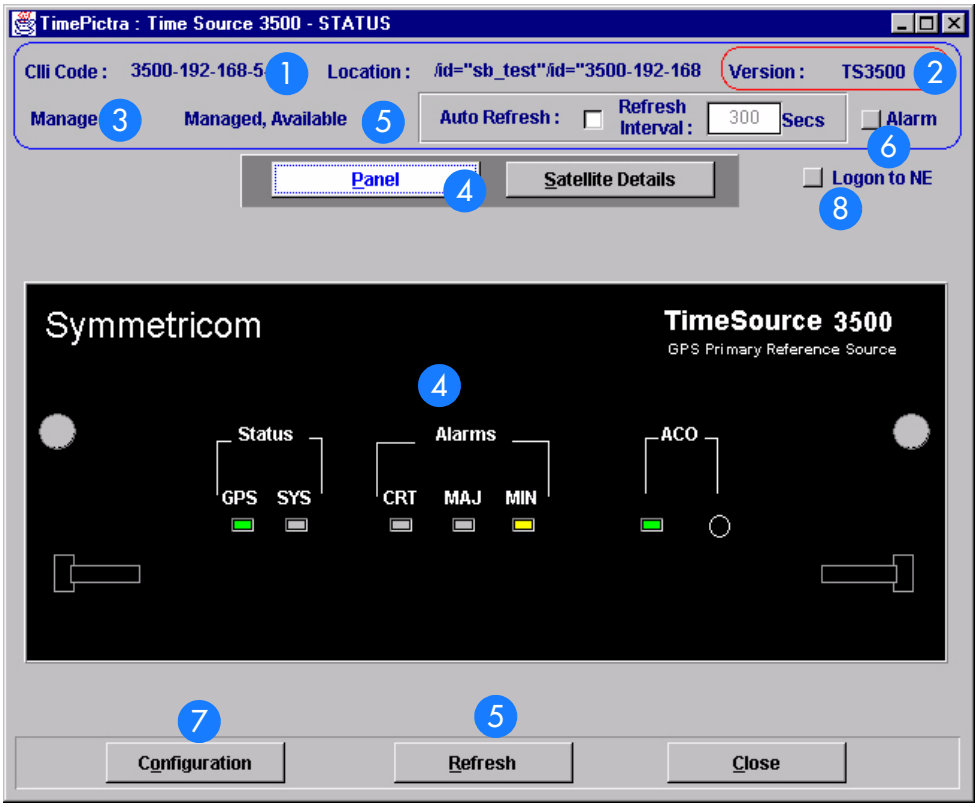

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Figure 104. Network Element Status Dialog Box - Satellite Details (TS 3000 and 3500 are similar)

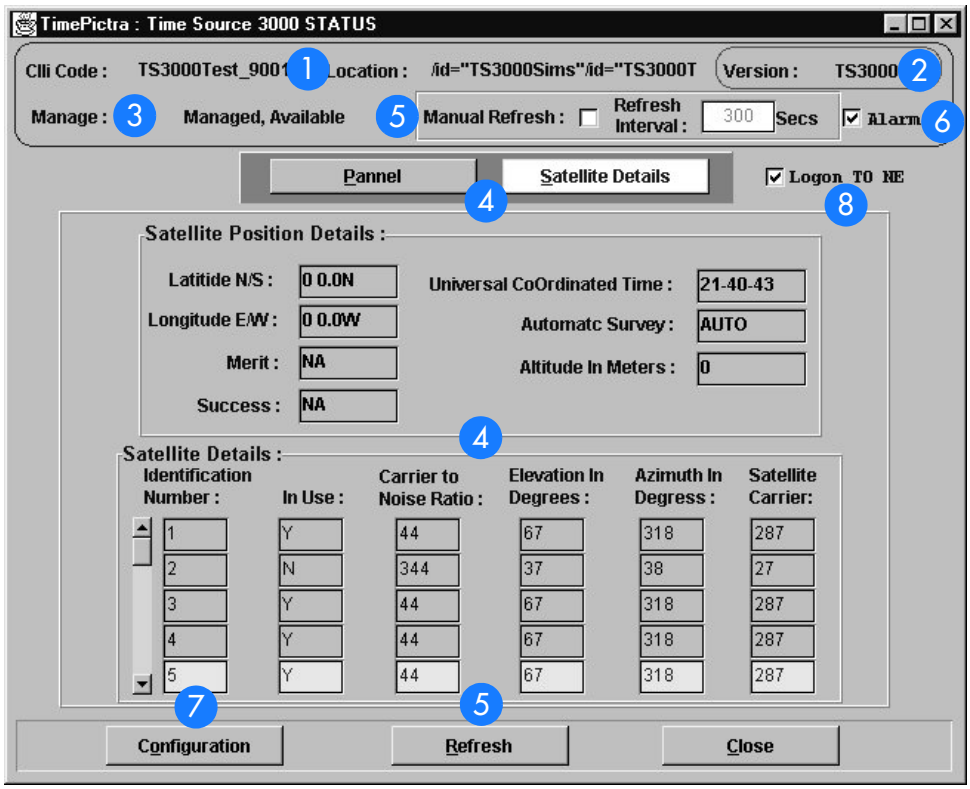

Table DX. Network Element Status Dialog Box Description

Item	Description
1	The CLLI code of the selected NE as well as the Location is shown here. These fields cannot be edited; they reflect the NE that was selected on the synchronization network map or in the Launch Pad when the dialog box was invoked.
2	The Version field indicates the type of NE represented in the dialog box.
3	The Manage field reports whether or not the selected NE is currently Managed, Available, Unavailable, etc. If the NE is currently locked, as for modification, (Locked) also appears.

Table DX. Network Element Status Dialog Box Description (cont'd)

Item	Description
4	The Panel and Satellite Details buttons can be clicked to determine the information displayed in the lower portion of the dialog box. When the Panel button has been clicked, the area functionally simulates the panel area of the selected NE, as shown in Figures 102 and 103. It shows the current status of the various indicators on the NE's front panel. When the Satellite Details button has been clicked, the area displays the position of the receiver, as well as status information for each of the GPS satellites that are in view of the receiver, as shown in Figure 104. *Notes:* 1. If the selected NE is unmanaged, the Network Element Status dialog box cannot be invoked. 2. If the selected NE is unavailable, the display area will be blank and the message `Could not Retrieve Status...` will be displayed. 3. If the satellite details are not available, the message `Satellite Details Not Present` will be displayed in the Satellite Details portion of the dialog box.
5	The Refresh interval determines the frequency at which the status display is automatically updated. The default refresh interval is 300 seconds and the minimum refresh interval is 30 seconds. The status display can be updated at any time by clicking the Refresh button. If the Manual Refresh check-box is not selected, the display will not be automatically updated at the refresh interval, but can be manually refreshed by clicking the Refresh button. *Notes:* 1. By default, the Auto Refresh check-box is not selected when the dialog box is invoked. 2. A status display that is minimized (iconized) on the synchronization network map might pop up after the refresh interval expires. To avert this, deselect the Auto Refresh check-box before minimizing the status display. This also has the advantage of avoiding unnecessary queries to the NE. 3. If, upon refreshing the display, the software detects that the NE has been deleted, a warning message is displayed and then the display closes.
6	Clicking the Alarm button invokes an instance of the Alarm Viewer dialog box which contains the alarms currently active in the NE.
7	Clicking the Configuration Button invokes an instance of the View Configuration dialog box in which the current configuration of the NE can be viewed.
8	In rare cases, the Logon To NE button can be used to log on to the NE.

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Status Panel Indicator Descriptions

The following tables briefly explain the status indications shown for the NE.

Table DY explains the status indicators shown for the panel of the NE.

Table DY. Status Indicators - Panel View

Indicator	NE	Description
Span A *and* Span B	TS 3000	When off, the input has not been entered using the Enter Equipment command. When green, the input has been entered using the Enter Equipment command, and is qualified as a valid reference. When yellow, an event (timing error, loss of signal, alarm indication signal [AIS], SSM enabled and not PRS quality) has occurred on the input. When red, an event (timing error, loss of signal, AIS, SSM enabled and not PRS quality), which has existed on the input for more than 24 hours, has escalated to a minor alarm.
Remote Oscillator A *and* Remote Oscillator B	TS 3000	When off, the input has not been entered using the Enter Equipment command. When green, the input has been entered using the Enter Equipment command, and is qualified as a valid reference. When yellow, an event (timing error or loss of signal) has occurred on the input. When red, an event (timing error or loss of signal), which has existed on the input for more than 24 hours, has escalated to a minor alarm.
GPS	TS 3000 TS 3500	When off, the System is not powered. When green, the GPS is successfully tracking satellites, or is in warm-up. When yellow, an event (GPS error) has occurred. When red, a GPS event, which has existed for more than 3 hours, has escalated to a minor alarm.
SYS	TS 3000 TS 3500	When off, the System is in warm-up mode or is not powered. When green, the output signal is PRS. When red, the system has been in holdover for more than 24 hours, or there is a hardware fault.
CRT[a]	TS 3000 TS 3500	When off, there is no critical alarm. When red, a critical alarm has occurred because of a hardware failure.
MAJ[a]	TS 3000 TS 3500	When off, there is no major alarm. When red, the system has been in holdover for more than 24 hours.
MIN[a]	TS 3000 TS 3500	When off, there is no minor alarm. When yellow, a minor alarm has occurred for one of the following reasons: - Battery A or B has failed. - A software download is required. - An event (GPS error, temperature error, span input problem, or remote oscillator input problem) has escalated to a minor alarm. - The antenna failed.

Table DY. Status Indicators - Panel View (cont'd)

Indicator	NE	Description
ACO (indicator)	TS 3000 TS 3500	When off, the alarm cutoff function has not been activated. When green, the alarm cutoff function has been activated.
ACO (button)	TS 3000 TS 3500	When this button is clicked, all audible alarms are silenced.

a.Click this indicator when it is lit to display more information on the alarms related to it.

Table DZ explains the satellite details.

Table DZ. Satellite Details

Field	NE	Description
		Receiver Details
Latitude N/S	TS 3000 TS 3500	Current latitude of the receiver - north (N) or south (S) in degrees, minutes, and decimal-fractions of a minute.
Longitude E/W	TS 3000 TS 3500	Current longitude of the receiver - east (E) or west (W) in degrees, minutes, and decimal-fractions of a minute.
Merit	TS 3500	The timing error estimate in ns.
Success	TS 3500	The percentage of time satellites are visible.
Universal Coordinated Time	TS 3000 TS 3500	Universal Coordinated Time (UTC), where *hh* is hours (00 to 23), *mm* is minutes (00 to 59), and *ss* is seconds (00 to 59).
Automatic Survey	TS 3500	Shows whether automatic or manual survey-in mode is currently in use.
Altitude in Meters	TS 3000 TS 3500	Altitude of the receiver in meters to the thousandth of a meter, referenced to mean sea level.
		Satellite Details
Identification Number	TS 3000 TS 3500	The satellite identification number. The remaining parameters in the row pertain to the satellite with this satellite identification number.
In Use	TS 3000 TS 3500	Identifies whether or not the satellite is in use.
Carrier to Noise Ratio	TS 3000 TS 3500	The satellite's carrier-to-noise ratio.
Elevation in Degrees	TS 3000 TS 3500	The satellite's elevation in degrees.
Azimuth in Degrees	TS 3000 TS 3500	The satellite's azimuth in degrees.
Satellite Carrier	TS 3000 TS 3500	The number of seconds since the receiver locked to the satellite's carrier.

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the TimeSource 3000 and TimeSource 3500 NEs. The sub-sections within this section reflect the four setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- Network Element (NE) settings
- GPS settings
- Input/Output settings
- Communication Port settings

Each sub-section includes the following:

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL/1 command or Keyword within the NE's documentation where more detailed information on the particular setting can be found.

Network Element (NE) Settings

The software communicates with NEs via a network connection. There are several networking settings that are configurable in this dialog box. Figures 105 and 106 show the layout of the action panel for Network Element settings, also referred to as the System Module settings. Table EA gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

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Figure 105. Action Panel - Network Element Settings - TS 3000

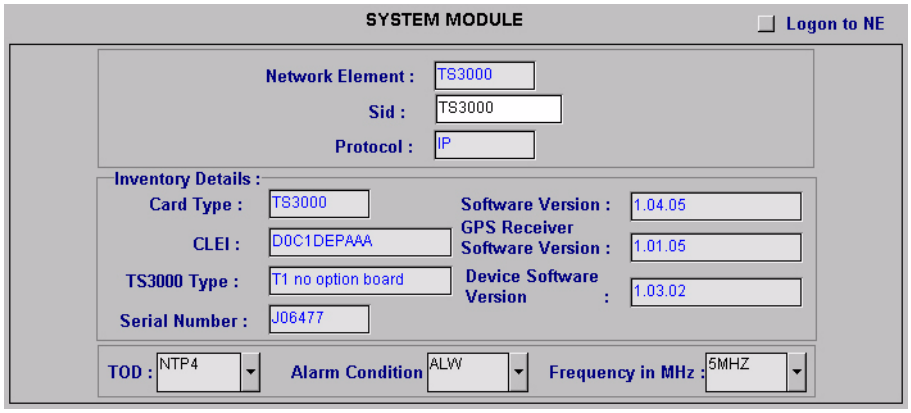

Figure 106. Action Panel - Network Element Settings - TS 3500

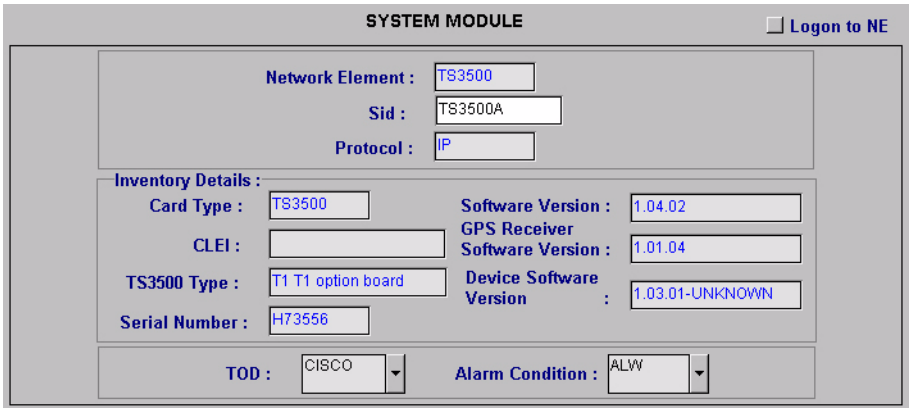

Table EA. Network Element Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
Alarm Condition	TS 3000 TS 3500	Sets the alarm conditioning for T1, TOD, IRIG-B, and composite clock outputs.	ALMCOND (keyword)
Card Type	TS 3000 TS 3500	The system card type.	RTRV-INVENTORY (command)
CLEI	TS 3000 TS 3500	The Common Language Equipment code.	None
Device Software Version	TS 3000 TS 3500	The device software version.	RTRV-INVENTORY (command)
Frequency in MHz	TS 3000	Sets the frequency for both remote oscillator inputs.	ED-EQPT (command)
GPS Receiver Software Version	TS 3000 TS 3500	The GPS receiver software version.	RTRV-INVENTORY (command)
Network Element	TS 3000 TS 3500	Indicates the type of Network Element. This information is retrieved during the NE management operation and is for display only.	*None*
Protocol	TS 3000 TS 3500	The networking protocol used by the NE. This information is retrieved during the NE management operation and is for display only.	*None*
Serial Number	TS 3000 TS 3500	The serial number.	RTRV-INVENTORY (command)
Sid	TS 3000 TS 3500	Sets the name of the equipment sending messages.	SET-SID (command)
Software Version	TS 3000 TS 3500	The system software version.	RTRV-INVENTORY (command)
TOD	TS 3000 TS 3500	Sets the format of the time-of-day serial message.	ED-EQPT (command)
TS3000 Type *or* TS3500 Type	TS 3000 TS 3500	The TimeSource system type.	RTRV-INVENTORY (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

GPS Settings

The GPS antenna is encased in weather-resistant housing for outdoor installation. A single coaxial cable carries signals and power between the antenna and the NE. Several antenna-related settings are configurable in this dialog box. Figures 107 and 108 show the layout of the action panel for GPS settings. Table EB gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

Figure 107. Action Panel - GPS Settings - TS 3000

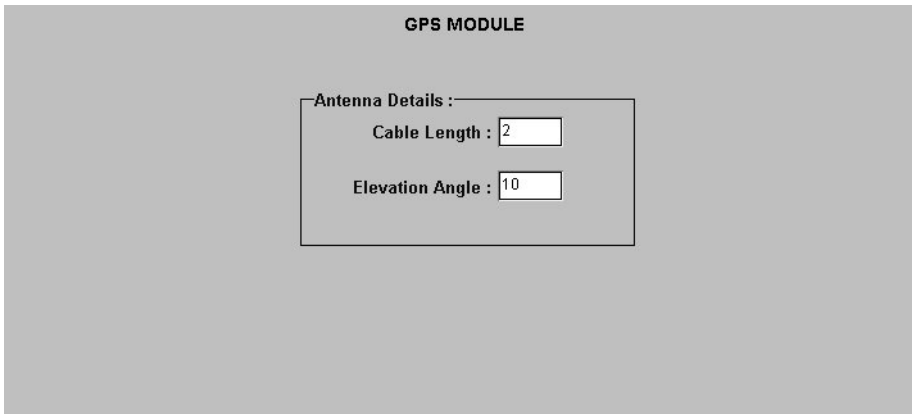

Figure 108. Action Panel - GPS Settings - TS 3500

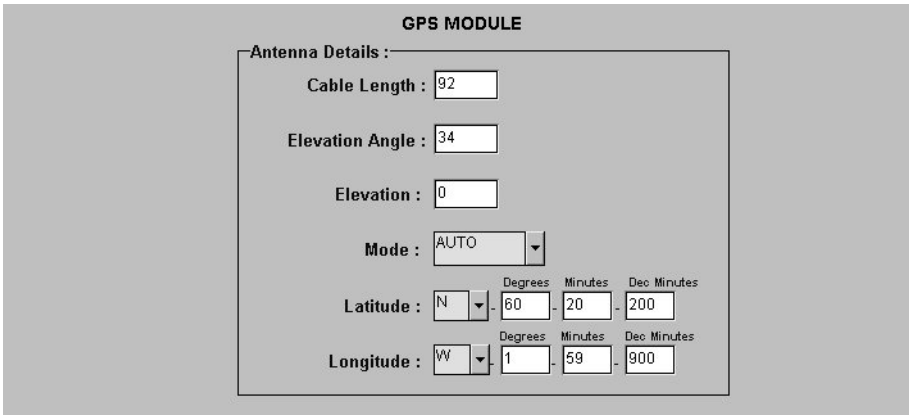

Table EB. GPS Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
Cable Length	TS 3000 TS 3500	Sets the antenna cable length, in meters.	ED-EQPT (command)
Elevation Angle	TS 3000 TS 3500	Sets the antenna elevation mask angle, in degrees.	ED-EQPT (command)

Table EB. GPS Settings (cont'd)

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
Elevation[b]	TS 3500	Sets the antenna elevation, in meters.	ED-EQPT (command)
Mode	TS 3500	Selects either automatic or manual survey-in mode.	ED-EQPT (command)
Latitude[b]	TS 3500	Latitude setting when Mode is MANUAL.	ED-EQPT (command)
Longitude[b]	TS 3500	Longitude setting when Mode is MANUAL.	ED-EQPT (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.The TimeSource 3500 uses the Latitude, Longitude, and Elevation values for latitude, longitude, and elevation when Mode is set to MANUAL. The TimeSource 3500 uses these values as starting points for processing the antenna position. Changes to these values are ignored while Mode is set to AUTO.

Input/Output Settings

Optional T1 input signals enter the NE on the SPAN IN A and SPAN IN B wire-wrap pins, and optional remote oscillator input signals enter the TimeSource 3000 NE on the A and B REM OSC connectors. From these external signals, clock extractor circuits extract timing signals, which are then processed by the NE's BesTime Ensemble Timing Generator.

The NE's BesTime Ensemble Timing Generator provides timing for the T1 timing signal, which is available at the T1 OUT A and B output connectors in a framed, all-ones format, which can be set to ESF or D4 framing. The NE also provides, as an option, eight additional T1 outputs at the OPTIONS I/O wire-wrap pins. These outputs function the same as the standard T1 OUT A and B outputs.

There are several input and output settings that are configurable in this dialog box. Figures 109 and 110 show the layout of the action panel for Input/Output settings. Table EC gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

Figure 109. Action Panel - Input/Output Settings - TS 3000

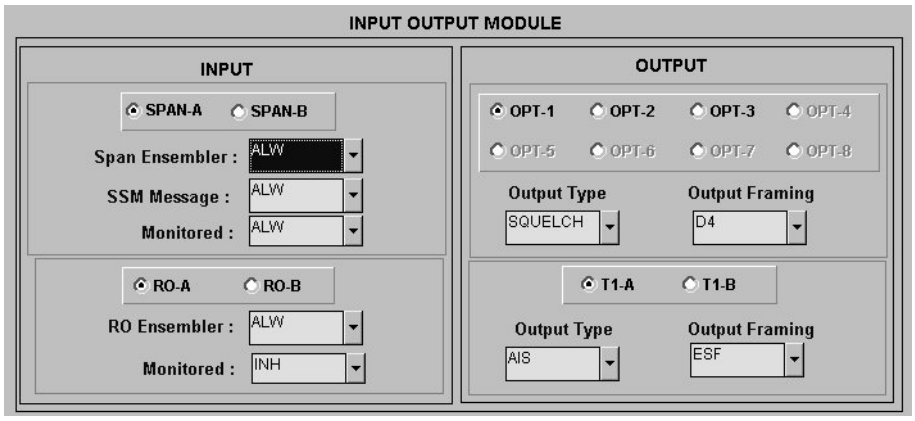

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Figure 110. Action Panel - Input/Output Settings - TS 3500

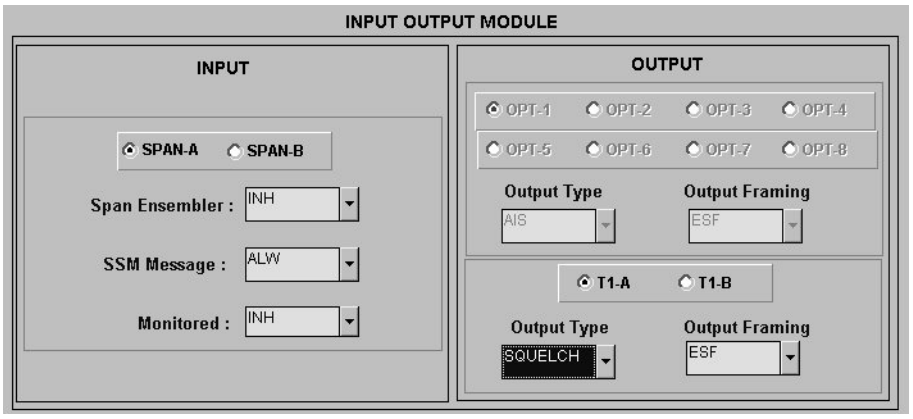

Table EC. Input/Output Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
		Span Input Selector	
SPAN-A SPAN-B (radio buttons)	TS 3000 TS 3500	The selection made using these radio buttons selects the SPAN IN A or SPAN IN B T1 input, to which the remainder of the span input-specific parameters apply.	*None*
		Span Input-Specific Settings[b]	
Span Ensembler	TS 3000 TS 3500	Determines whether or not the selected span input is ensembled.	ED-EQPT (command)
SSM Message	TS 3000 TS 3500	Determines whether or not an SSM message is used to qualify the selected span input.	ED-EQPT (command)
Monitored	TS 3000 TS 3500	Determines whether or not the selected span input is monitored.	RTRV-EQPT (command)
		Remote Oscillator Input Selector	
RO-A RO-B (radio buttons)	TS 3000	The selection made using these radio buttons selects the A or B REM OSC input, to which the remainder of the remote oscillator input-specific parameters apply.	*None*
		Remote Oscillator Input-Specific Settings[c]	
RO Ensembler	TS 3000	Determines whether or not the selected remote oscillator input is ensembled.	ED-EQPT (command)
Monitored	TS 3000	Determines whether or not the selected remote oscillator input is monitored.	RTRV-EQPT (command)

Table EC. Input/Output Settings (cont'd)

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
		Optional T1 Output Selector	
OPT-1 *through* OPT-8 (radio buttons)	TS 3000 TS 3500	The selection made using these radio buttons selects an optional OPTIONS I/O wire-wrap T1 output, to which the remainder of the optional T1 output-specific parameters apply. *Note:* If these outputs are not available, the radio buttons will be de-emphasized (grayed out).	*None*
		Optional T1 Output-Specific Settings[d]	
Output Type	TS 3000 TS 3500	Determines the mode of the selected output during an alarm.	ED-EQPT (command)
Output Framing	TS 3000 TS 3500	Determines the type of output framing for the optional TI output that is selected.	ED-EQPT (command)
		T1 Output Selector	
T1-A T1-B (radio buttons)	TS 3000 TS 3500	The selection made using these radio buttons selects the T1 OUT A or B output, to which the remainder of the T1 output-specific parameters apply.	*None*
		T1 Output-Specific Settings[e]	
Output Type	TS 3000 TS 3500	Determines the mode of the selected output during an alarm.	ED-EQPT (command)
Output Framing	TS 3000 TS 3500	Determines the type of output framing for the TI output that is selected.	ED-EQPT (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Span Input-Specific Settings* apply specifically to the span input specified by the Span Input Selector.
c.*Remote Oscillator Input-Specific Settings* apply specifically to the remote oscillator input specified by the Remote Oscillator Input Selector.
d.*Optional T1 Output-Specific Settings* apply specifically to the optional T1 output specified by the Optional T1 Output Selector.
e.*T1 Output-Specific Settings* apply specifically to the T1 output specified by the T1 Output Selector.

Communication Port Settings

The NE includes three TL/1 serial communication ports. In addition, one physical Ethernet port is included with five configurable virtual ports to carry TL1 commands, responses, and autonomous messages between the NE and an external terminal, an Element Manager, or both.

There are several communication port settings that are configurable in this dialog box. Figure 111 shows the layout of the action panel for Communication Port settings. Table ED gives a brief description of each setting. The COMMAND/ KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

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Figure 111. Action Panel - Communication Port Settings - TS 3000 and TS 3500 Panel is Similar

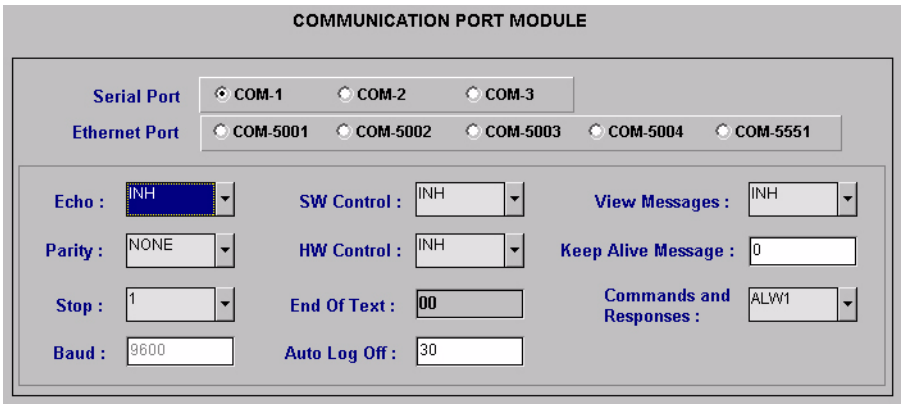

Table ED. Communication Port Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Communication Port Selectors	
COM-1 *through* COM-3	TS 3000 TS 3500	The selection made using these radio buttons selects the serial communication port to which the remainder of the communication port-specific parameters apply.	*None*
COM-50001 *through* Com-5004, Com 5551	TS 3000 TS 3500	The selection made using these radio buttons selects the virtual ethernet port to which the remainder of the communication port-specific parameters apply.	*None*
		Communication Port-Specific Settings[b]	
Auto Log Off	TS 3000 TS 3500	Sets the number of inactive minutes before the unit automatically logs the user off of the selected serial port, while keeping the connection open. This setting can also disable the auto log off feature.	ED-COM (command)

Table ED. Communication Port Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Baud[c]	TS 3000 TS 3500	Sets the baud rate of the selected serial port.	ED-COM (command)
Commands and Responses	TS 3000 TS 3500	Determines whether or not autonomous messages are sent on the selected port. Also determines whether or not to log off the current user, close the connection, and inhibit it from use.	ED-COM (command)
Echo	TS 3000 TS 3500	Determines whether or not to echo characters received so they appear on the user's screen as typed.	ED-COM (command)
End of Text	TS 3000 TS 3500	The hex code added to responses before the semicolon. *Note:* This is a read-only field.	ED-COM (command)
HW Control[d]	TS 3000 TS 3500	Determines whether or not serial port CTS/RTS flow control is enabled.	ED-COM (command)
Keep Alive Message	TS 3000 TS 3500	The number of inactive minutes until the unit sends a COMPLD message to keep the connection from being closed. Also used to inhibit the COMPLD message from being sent.	ED-COM (command)
Parity[c]	TS 3000 TS 3500	Sets either even or odd parity on the selected communication port.	ED-COM (command)
Stop[c]	TS 3000 TS 3500	Sets either one or two stop bits on the selected communication port.	ED-COM (command)
SW Control[d,e]	TS 3000 TS 3500	Determines whether or not XON/XOFF flow control is enabled.	ED-COM (command)
View Messages	TS 3000 TS 3500	Determines whether messages from all ports are viewed, or only messages from the currently selected port.	ED-COM (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Communication Port-Specific Settings* apply specifically to the communication port specified by the Communication Port Selectors.
c.Baud rate, parity, and stop bits can only be configured on serial communication ports (1, 2, and 3).
d.Flow control is not implemented on communication port 3.
e.XON/XOFF flow control is simulated for the Ethernet ports.

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NE Information - TimeSource 3100 and TimeSource 3600

App. G

This chapter provides information and procedures that are specific to the TimeSource 3100 and TimeSource 3600 Network Elements.

Network Element Status

The software contains a dialog box that summarizes the status of a selected TimeSource 3100 or 3600 NE. This dialog box, the Network Element Status dialog box, presents a display which visually resembles the front panel of the NE. The dialog box view can also be changed to show details of the satellites being tracked by the NE. The following provides more information on the Network Element Status dialog box.

Network Element Status dialog box

The Network Element Status dialog box displays details of the status of the selected NE, and of the satellites being tracked by the NE. Figures 112, 113, and 114 and Table EE briefly explain the Network Element Status dialog box for the NEs.

Figure 112. TS 3100 Network Element Status Dialog Box - Panel Details

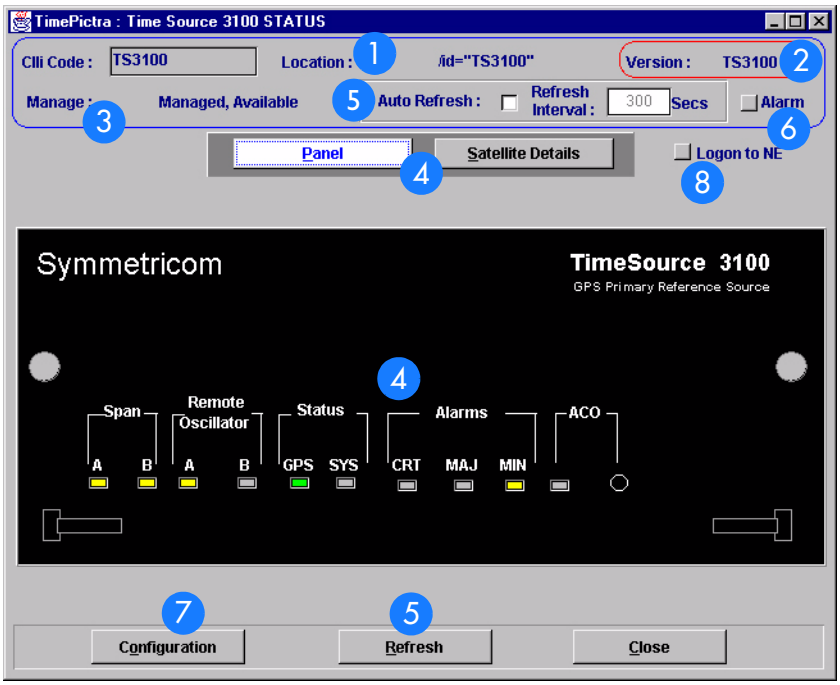

Figure 113. TS 3600 Network Element Status Dialog Box - Panel Details

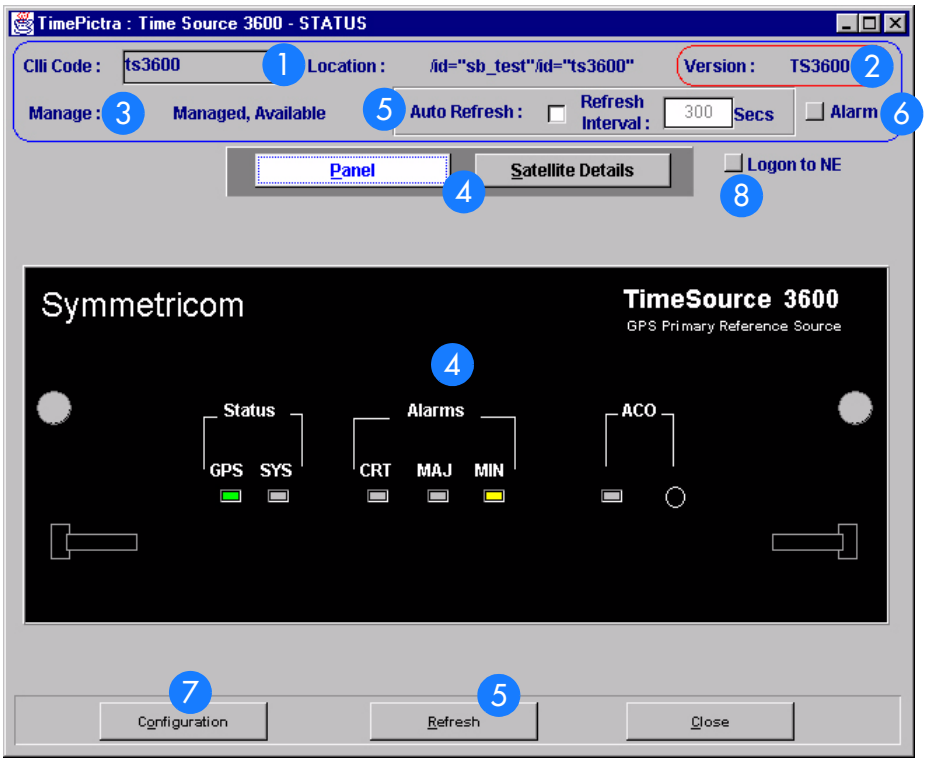

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Figure 114. Network Element Status Dialog Box - Satellite Details (TS 3100 and 3600 are similar)

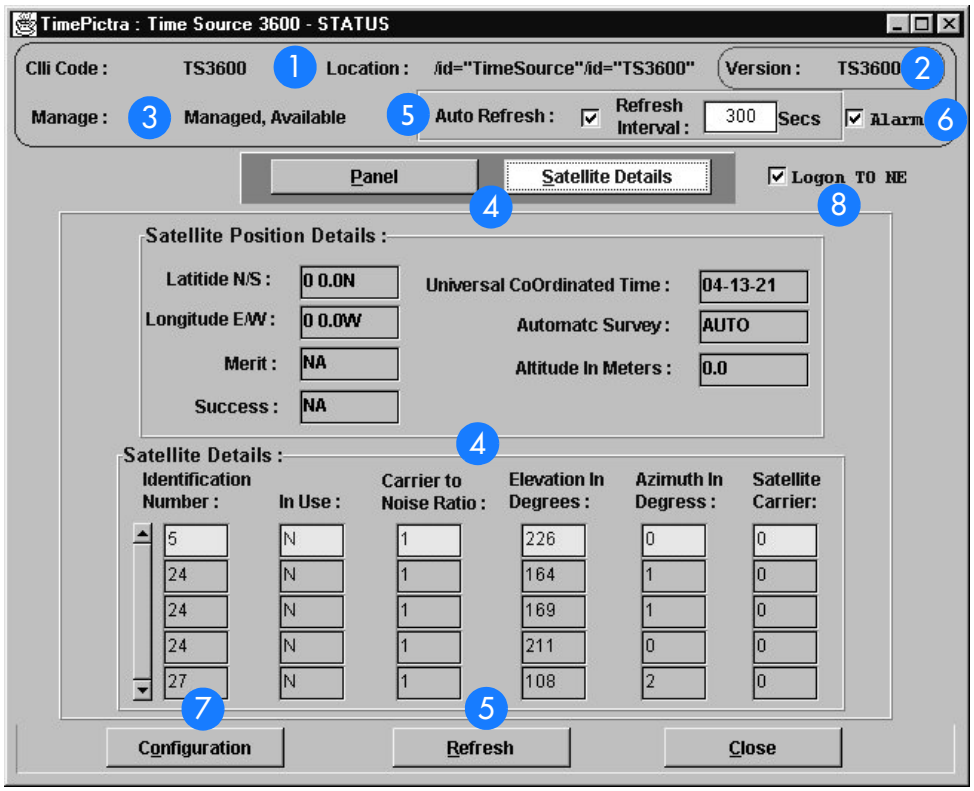

Table EE. Network Element Status Dialog Box Description

Item	Description
1	The CLLI code of the selected NE as well as the Location is shown here. These fields cannot be edited; they reflect the NE that was selected on the synchronization network map or in the Launch Pad when the dialog box was invoked.
2	The Version field indicates the type of NE represented in the dialog box.
3	The Manage field reports whether or not the selected NE is currently Managed, Available, Unavailable, etc. If the NE is currently locked, as for modification, (Locked) also appears.

Table EE. Network Element Status Dialog Box Description (cont'd)

Item	Description
4	The Panel and Satellite Details buttons can be clicked to determine the information displayed in the lower portion of the dialog box. When the Panel button has been clicked, the area functionally simulates the panel area of the selected NE, as shown in Figures 112 and 113. It shows the current status of the various indicators on the NE's front panel. When the Satellite Details button has been clicked, the area displays the position of the receiver, as well as status information for each of the GPS satellites that are in view of the receiver, as shown in Figure 114. *Notes:* 1. If the selected NE is unmanaged, the Network Element Status dialog box cannot be invoked. 2. If the selected NE is unavailable, the display area will be blank and the message `Could not Retrieve Status...` will be displayed. 3. If the satellite details are not available, the message `Satellite Details Not Present` will be displayed in the Satellite Details portion of the dialog box.
5	The Refresh interval determines the frequency at which the status display is automatically updated. The default refresh interval is 300 seconds and the minimum refresh interval is 30 seconds. The status display can be updated at any time by clicking the Refresh button. If the Auto Refresh check-box is selected, the display will be automatically updated at the refresh interval. *Notes:* 1. By default, the Auto Refresh check-box is not selected when the dialog box is invoked. 2. A status display that is minimized (iconized) on the synchronization network map might pop up after the refresh interval expires. To avert this, deselect the Auto Refresh check-box before minimizing the status display. This also has the advantage of avoiding unnecessary queries to the NE. 3. If, upon refreshing the display, the software detects that the NE has been deleted, a warning message is displayed and then the display closes.
6	Clicking the Alarm button invokes an instance of the Alarm Viewer dialog box which contains the alarms currently active in the NE.
7	Clicking the Configuration Button invokes an instance of the View Configuration dialog box in which the current configuration of the NE can be viewed.
8	In rare cases, the Logon To NE button can be used to log on to the NE.

G

Status Panel Indicator Descriptions

The following tables briefly explain the status indications shown for the NE.

Table EF explains the status indicators shown for the panel of the NE.

Table EF. Status Indicators - Panel View

Indicator	NE	Description
Span A *and* Span B	TS 3100	When off, the input has not been entered using the Enter Equipment command. When green, the input has been entered using the Enter Equipment command, and is qualified as a valid reference. When yellow, an event (timing error, loss of signal, alarm indication signal [AIS], SSM enabled and not PRC quality) has occurred on the input. When red, an event (timing error, loss of signal, AIS, SSM enabled and not PRC quality), which has existed on the input for more than 24 hours, has escalated to a minor alarm.
Remote Oscillator A *and* Remote Oscillator B	TS 3100	When off, the input has not been entered using the Enter Equipment command. When green, the input has been entered using the Enter Equipment command, and is qualified as a valid reference. When yellow, an event (timing error or loss of signal) has occurred on the input. When red, an event (timing error or loss of signal), which has existed on the input for more than 24 hours, has escalated to a minor alarm.
GPS	TS 3100	When off, the System is not powered. When green, the GPS is successfully tracking satellites, or is in warm-up. When yellow, an event (GPS error) has occurred. When red, a GPS event, which has existed for more than 3 hours, has escalated to a minor alarm.
GPS	TS 3600	When off, the System is not powered. When green, the GPS is successfully tracking satellites, or is in warm-up. When yellow, an event (GPS error) has occurred. When red, a GPS event, which has existed for more than 10 hours, has escalated to a minor alarm.
SYS	TS 3100	When off, the System is in warm-up mode or is not powered. When green, the output signal is PRS. When red, the system has been in holdover for more than 24 hours, or there is a hardware fault.
SYS	TS 3600	When off, the System is in warm-up mode or is not powered. When green, the output signal is PRS. When red, the system has been in holdover for more than 72 hours, or there is a hardware fault.
CRT[a]	TS 3100 TS 3600	When off, there is no critical alarm. When red, a critical alarm has occurred because of a hardware failure.

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Table EF. Status Indicators - Panel View (cont'd)

Indicator	NE	Description
MAJ[a]	TS 3100	When off, there is no major alarm. When red, the system has been in holdover for more than 24 hours.
MAJ[a]	TS 3600	When off, there is no major alarm. When red, the system has been in holdover for more than 72 hours.
MIN[a]	TS 3100 TS 3600	When off, there is no minor alarm. When yellow, a minor alarm has occurred for one of the following reasons: - Battery A or B has failed. - A software download is required. - An event (GPS error, temperature error, span input problem, or remote oscillator input problem) has escalated to a minor alarm. - The antenna failed.
ACO (indicator)	TS 3100 TS 3600	When off, the alarm cutoff function has not been activated. When green, the alarm cutoff function has been activated.
ACO (button)	TS 3100 TS 3600	When this button is clicked, all audible alarms are silenced.

a.Click this indicator when it is lit to display more information on the alarms related to it.

G

Table EG explains the satellite details.

Table EG. Satellite Details

Field	NE	Description
		Receiver Details
Latitude N/S	TS 3100	Current latitude of the receiver - north (N) or south (S) in degrees, minutes, and seconds.
Latitude N/S	TS 3600	Current latitude of the receiver - north (N) or south (S) in degrees, minutes, and decimal fractions of a minute.
Longitude E/W	TS 3100	Current longitude of the receiver - east (E) or west (W) in degrees, minutes, and seconds.
Longitude E/W	TS 3600	Current longitude of the receiver - east (E) or west (W) in degrees, minutes, and decimal fractions of a minute.
Merit	TS 3100 TS 3600	The timing error estimate in ns.
Success	TS 3100 TS 3600	The percentage of time satellites are visible.
Universal Coordinated Time	TS 3100 TS 3600	Universal Coordinated Time (UTC), where *hh* is hours (00 to 23), *mm* is minutes (00 to 59), and *ss* is seconds (00 to 59).
Automatic Survey	TS 3100 TS 3600	Shows whether automatic or manual survey-in mode is currently in use.

Table EG. Satellite Details (cont'd)

Field	NE	Description
Altitude in Meters	TS 3100 TS 3600	Altitude of the receiver in meters to the thousandth of a meter, referenced to mean sea level.
		Satellite Details
Identification Number	TS 3100 TS 3600	The satellite identification number. The remaining parameters in the row pertain to the satellite with this satellite identification number.
In Use	TS 3100 TS 3600	Identifies whether or not the satellite is in use.
Carrier to Noise Ratio	TS 3100 TS 3600	The satellite's carrier-to-noise ratio.
Elevation in Degrees	TS 3100 TS 3600	The satellite's elevation in degrees.
Azimuth in Degrees	TS 3100 TS 3600	The satellite's azimuth in degrees.
Satellite Carrier	TS 3100 TS 3600	The number of seconds since the receiver locked to the satellite's carrier.

G

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the TimeSource 3100 and TimeSource 3600 NEs. The sub-sections within this section reflect the four setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- Network Element (NE) settings
- GPS settings
- Input/Output settings
- Communication Port settings

Each sub-section includes the following:

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL/1 command or Keyword within the NE's documentation where more detailed information on the particular setting can be found.

G

Network Element (NE) Settings

The software communicates with NEs via a network connection. There are several networking settings that are configurable in this dialog box. Figures 115 and 116 show the layout of the action panel for Network Element settings, also referred to as the System Module settings. Table EH gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

Figure 115. Action Panel - Network Element Settings - TS 3100

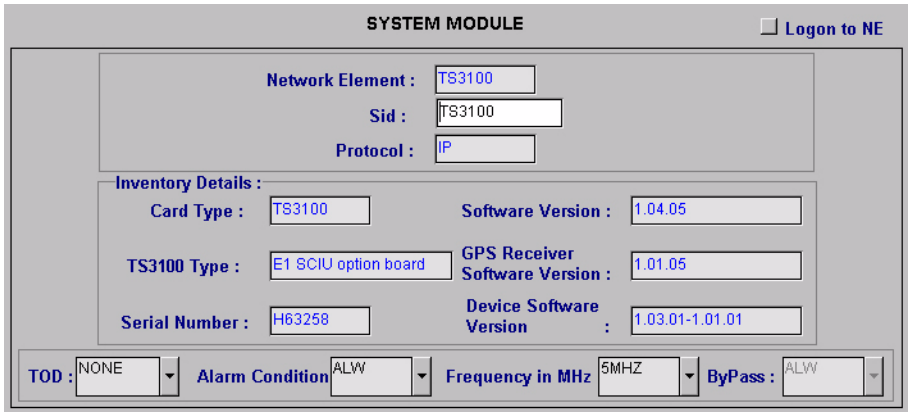

Figure 116. Action Panel - Network Element Settings - TS 3600

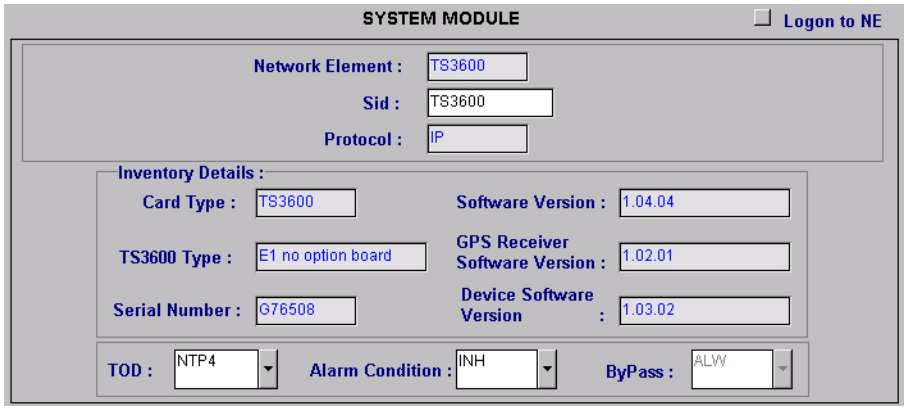

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Table EH. Network Element Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
Alarm Condition	TS 3100 TS 3600	Sets the alarm conditioning for E1, TOD, and IRIG-B outputs.	ALMCOND (keyword)
Card Type	TS 3100 TS 3600	The system card type.	RTRV-INVENTORY (command)
Device Software Version	TS 3100 TS 3600	The device software version.	RTRV-INVENTORY (command)
Frequency in MHz	TS 3100	Sets the frequency for both remote oscillator inputs.	ED-EQPT (command)
GPS Receiver Software Version	TS 3100 TS 3600	The GPS receiver software version.	RTRV-INVENTORY (command)
Network Element	TS 3100 TS 3600	Indicates the type of Network Element. This information is retrieved during the NE management operation and is for display only.	*None*
Protocol	TS 3100 TS 3600	The networking protocol used by the NE. This information is retrieved during the NE management operation and is for display only.	*None*
Serial Number	TS 3100 TS 3600	The serial number.	RTRV-INVENTORY (command)
Sid	TS 3100 TS 3600	Sets the name of the equipment sending messages.	SET-SID (command)
Software Version	TS 3100 TS 3600	The system software version.	RTRV-INVENTORY (command)
TOD	TS 3100 TS 3600	Sets the format of the time-of-day serial message.	ED-EQPT (command)
TS3100 Type *or* TS3600 Type	TS 3100 TS 3600	The TimeSource system type.	RTRV-INVENTORY (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

G

GPS Settings

The GPS antenna is encased in weather-resistant housing for outdoor installation. A single coaxial cable carries signals and power between the antenna and the NE. Several antenna-related settings are configurable in this dialog box. Figures 117 and 118 show the layout of the action panel for GPS settings. Table EI gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

Figure 117. Action Panel - GPS Settings - TS 3100

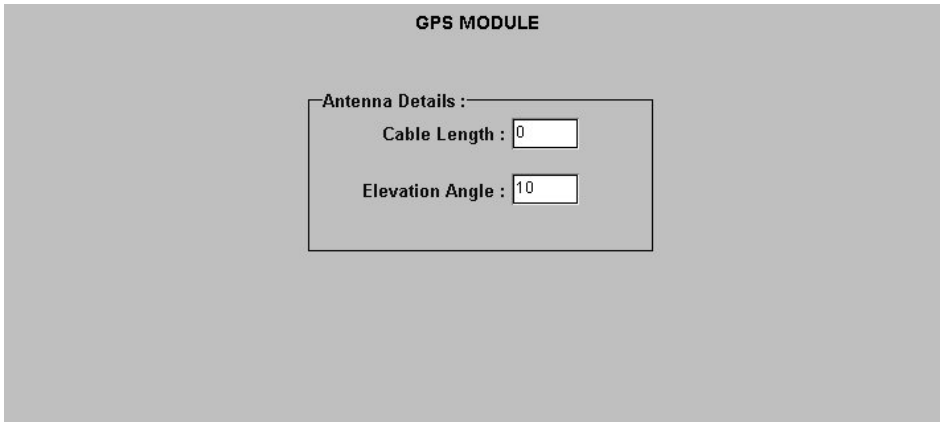

Figure 118. Action Panel - GPS Settings - TS 3600

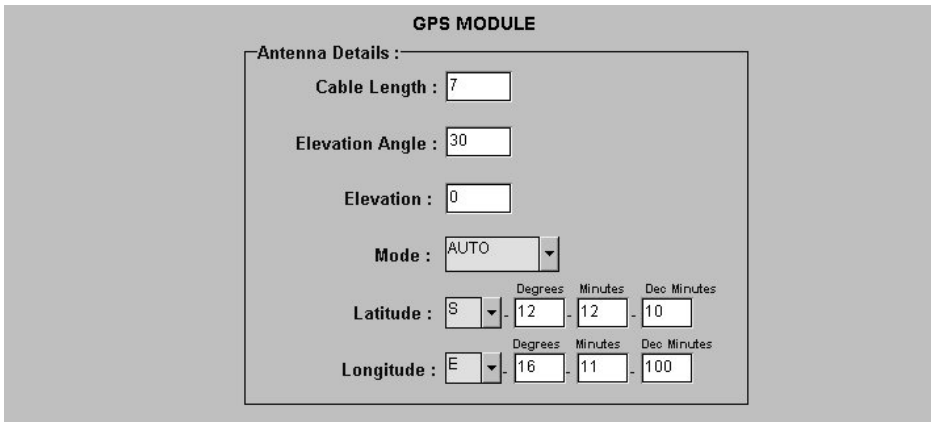

Table EI. GPS Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
Cable Length	TS 3100 TS 3600	Sets the antenna cable length, in meters.	ED-EQPT (command)
Elevation Angle	TS 3100 TS 3600	Sets the antenna elevation mask angle, in degrees.	ED-EQPT (command)
Elevation[b]	TS 3600	Sets the antenna elevation, in meters.	ED-EQPT (command)
Mode	TS 3600	Selects either automatic or manual survey-in mode.	ED-EQPT (command)
Latitude[b]	TS 3600	Latitude setting when Mode is MANUAL.	ED-EQPT (command)
Longitude[b]	TS 3600	Longitude setting when Mode is MANUAL.	ED-EQPT (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.The TimeSource 3600 uses the Latitude, Longitude, and Elevation values for latitude, longitude, and elevation when Mode is set to MANUAL. The TimeSource 3600 uses these values as starting points for processing the antenna position. Changes to these values are ignored while Mode is set to AUTO.

G

Input/Output Settings

Optional E1 input signals enter the NE on the SPAN IN A and SPAN IN B wire-wrap pins, and optional remote oscillator input signals enter the TimeSource 3100 NE on the A and B REM OSC connectors. From these external signals, clock extractor circuits extract timing signals, which are then processed by the NE's BesTime Ensemble Timing Generator.

The NE's BesTime Ensemble Timing Generator provides timing for the E1 timing signal, which is available at the E1 OUT A and B output connectors in a framed, all-ones format. The NE also provides, as an option, eight additional E1 outputs at the OPTIONS I/O wire-wrap pins. These outputs function the same as the standard E1 OUT A and B outputs.

There are several input and output settings that are configurable in this dialog box. Figures 119 and 120 show the layout of the action panel for Input/Output settings. Table EJ gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

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Figure 119. Action Panel - Input/Output Settings - TS 3100

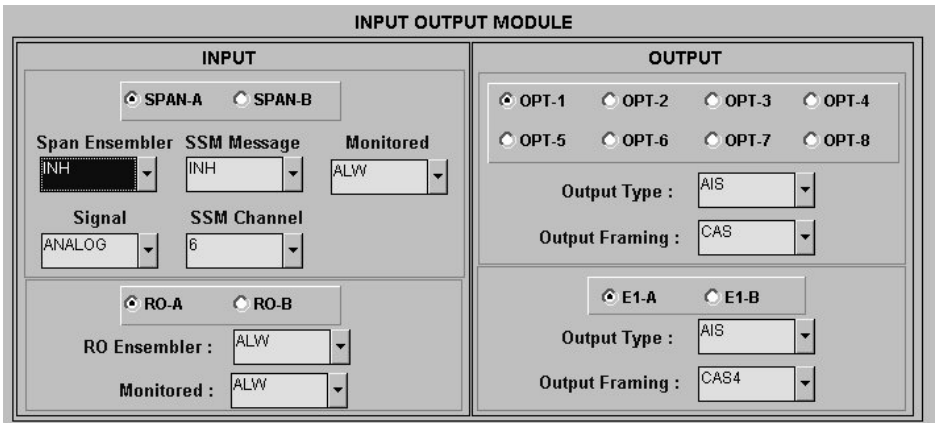

Figure 120. Action Panel - Input/Output Settings - TS 3600

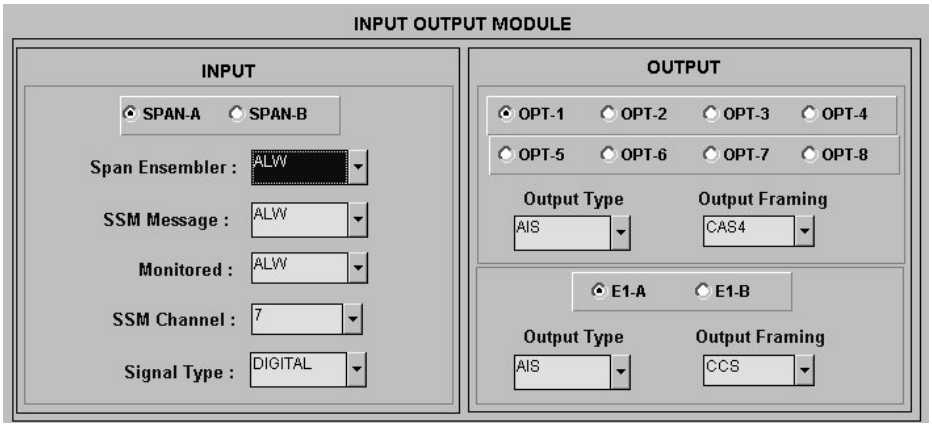

Table EJ. Input/Output Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
		Span Input Selector	
SPAN-A SPAN-B (radio buttons)	TS 3100 TS 3600	The selection made using these radio buttons selects the SPAN IN A or SPAN IN B E1 input, to which the remainder of the span input-specific parameters apply.	*None*
		Span Input-Specific Settings[b]	
Span Ensembler	TS 3100 TS 3600	Determines whether or not the selected span input is ensembled.	ED-EQPT (command)
SSM Message	TS 3100 TS 3600	Determines whether or not SSM is used to qualify the selected span input.	ED-EQPT (command)
Monitored	TS 3100 TS 3600	Indicates whether or not the selected span input is monitored.	RTRV-EQPT (command)
Signal	TS 3100 TS 3600	Determines if the span input is analog (2.048 MHz), or digital (2.048 Mb/s).	ED-EQPT (command)
SSM Channel	TS 3100 TS 3600	Determines the SSM bit used.	ED-EQPT (command)
		Remote Oscillator Input Selector	
RO-A RO-B (radio buttons)	TS 3100	The selection made using these radio buttons selects the A or B REM OSC input, to which the remainder of the remote oscillator input-specific parameters apply.	*None*

Table EJ. Input/Output Settings (cont'd)

Setting/Button	NE	Description	COMMAND/KEYWORD[a]
		Remote Oscillator Input-Specific Settings[c]	
RO Ensembler	TS 3100	Determines whether or not the selected remote oscillator input is ensembled.	ED-EQPT (command)
Monitored	TS 3100	Indicates whether or not the selected remote oscillator input is monitored.	RTRV-EQPT (command)
		Optional E1 Output Selector	
OPT-1 *through* OPT-8 (radio buttons)	TS 3100 TS 3600	The selection made using these radio buttons selects an optional OPTIONS I/O wire-wrap E1 output, to which the remainder of the optional E1 output-specific parameters apply. *Note:* If these outputs are not available, the radio buttons will be de-emphasized (grayed out).	*None*
		Optional E1 Output-Specific Settings[d]	
Output Type	TS 3100 TS 3600	Determines the mode of the selected output during an alarm.	ED-EQPT (command)
Output Framing	TS 3100 TS 3600	Determines the type of output framing for the optional EI output that is selected.	ED-EQPT (command)
		E1 Output Selector	
E1-A E1-B (radio buttons)	TS 3100 TS 3600	The selection made using these radio buttons selects the E1 OUT A or B output, to which the remainder of the E1 output-specific parameters apply.	*None*
		E1 Output-Specific Settings[e]	
Output Type	TS 3100 TS 3600	Determines the mode of the selected output during an alarm.	ED-EQPT (command)
Output Framing	TS 3100 TS 3600	Determines the type of output framing for the EI output that is selected.	ED-EQPT (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Span Input-Specific Settings* apply specifically to the span input specified by the Span Input Selector.
c.*Remote Oscillator Input-Specific Settings* apply specifically to the remote oscillator input specified by the Remote Oscillator Input Selector.
d.*Optional E1 Output-Specific Settings* apply specifically to the optional E1 output specified by the Optional E1 Output Selector.
e.*E1 Output-Specific Settings* apply specifically to the E1 output specified by the E1 Output Selector.

Communication Port Settings

The NE includes three TL/1 serial communication ports. In addition, one physical Ethernet port is included with five configurable virtual ports to carry TL/1 commands, responses, and autonomous messages between the NE and an external terminal, an Element Manager, or both.

There are several communication port settings that are configurable in this dialog box. Figure 121 shows the layout of the action panel for Communication Port settings. Table EK gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeSource documentation where more detailed information can be found.

Figure 121. Action Panel - Communication Port Settings - TS 3100 and TS 3600 Panel is Similar

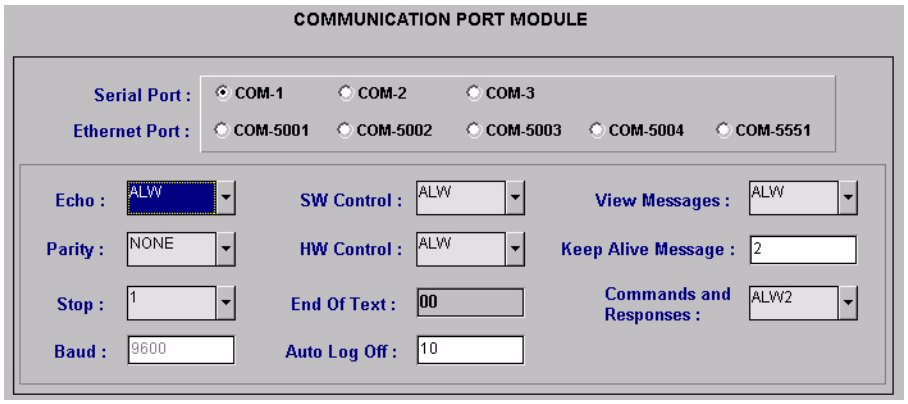

Table EK. Communication Port Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Communication Port Selectors	
COM-1 *through* COM-3	TS 3100 TS 3600	The selection made using these radio buttons selects the serial communication port to which the remainder of the communication port-specific parameters apply.	*None*
COM-50001 *through* Com-5004, Com 5551	TS 3100 TS 3600	The selection made using these radio buttons selects the virtual ethernet port to which the remainder of the communication port-specific parameters apply.	*None*
		Communication Port-Specific Settings[b]	

Table EK. Communication Port Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Auto Log Off	TS 3100 TS 3600	Sets the number of inactive minutes before the unit automatically logs the user off of the selected serial port, while keeping the connection open. This setting can also disable the auto log off feature.	ED-COM (command)
Baud[c]	TS 3100 TS 3600	Sets the baud rate of the selected serial port.	ED-COM (command)
Commands and Responses	TS 3100 TS 3600	Determines whether or not autonomous messages are sent on the selected port. Also determines whether or not to log off the current user, close the connection, and inhibit it from use.	ED-COM (command)
Echo	TS 3100 TS 3600	Determines whether or not to echo characters received so they appear on the user's screen as typed.	ED-COM (command)
End of Text	TS 3100 TS 3600	The hex code added to responses before the semicolon. *Note:* This is a read-only field.	ED-COM (command)
HW Control[d]	TS 3100 TS 3600	Determines whether or not serial port CTS/RTS flow control is enabled.	ED-COM (command)
Keep Alive Message	TS 3100 TS 3600	The number of inactive minutes until the unit sends a COMPLD message to keep the connection from being closed. Also used to inhibit the COMPLD message from being sent.	ED-COM (command)
Parity[c]	TS 3100 TS 3600	Sets either even or odd parity on the selected communication port.	ED-COM (command)
Stop[c]	TS 3100 TS 3600	Sets either one or two stop bits on the selected communication port.	ED-COM (command)
SW Control[d,e]	TS 3100 TS 3600	Determines whether or not XON/XOFF flow control is enabled.	ED-COM (command)
View Messages	TS 3100 TS 3600	Determines whether messages from all ports are viewed, or only messages from the currently selected port.	ED-COM (command)

a.Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the TimeSource documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.
b.*Communication Port-Specific Settings* apply specifically to the communication port specified by the Communication Port Selectors.
c.Baud rate, parity, and stop bits can only be configured on serial communication ports (1, 2, and 3).
d.Flow control is not implemented on communication port 3.
e.XON/XOFF flow control is simulated for the Ethernet ports.

NE Information - TSG 3800 Versions D and E

This chapter provides information and procedures that are specific to the TSG 3800 Version D and E Network Elements.

App. H

Network Element Status

The software contains a dialog box that summarizes the status of the selected TSG 3800 version D or version E NE. This dialog box, the Network Element Status dialog box, displays a summary of the status of the various boards of the selected NE. The dialog box contains panel displays which show the state of some of the indicators on the card's front panels. Figure 122 and Table EL briefly explain the Network Element Status dialog box.

Note: The Network Element Status dialog box shown in Figure 122 is for the TSG 3800 version D. The Network Element Status dialog box for version E appears essentially identical.

Figure 122. Network Element Status Dialog Box

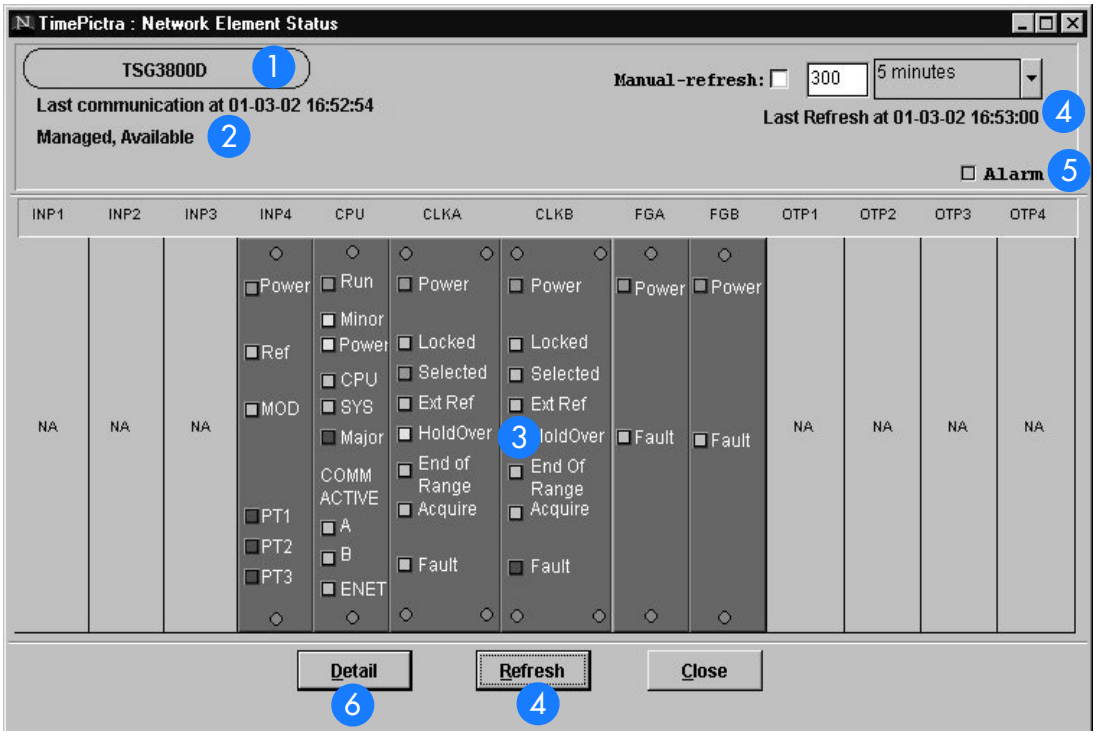

Table EL. Network Element Status Box Description

Item	Description
1	The CLLI code of the NE to which the status display applies is shown on this line. This field cannot be edited; it reflects the information for the NE that is selected in the target list area of the Launch Pad when the dialog box is called up.

Table EL. Network Element Status Box Description (cont'd)

Item	Description
2	This area reports whether or not the selected NE is currently Managed, Available, etc., and whether or not it has been Locked, as by another session. The "Last communication at" field contains the date and time at which the last successful communication between the software and the selected NE took place. This communication can be the reception of an event, or any successful command/response sequence, such as successful reception of a response to a heartbeat message.
3	This area shows the current status of the various equipment cards in the NE via status indicators, which simulate some of the LED indicators on the cards. If any of the equipment cards are not present, the corresponding slot in this area will be blank. *Note:* If the selected NE is unavailable, this area will be blank and the message "`----- Status Unknown -----`" will be displayed.
4	The refresh settings determine the frequency at which the information in the status display is automatically updated. If the "Auto-refresh" check-box is selected, the information in the status display will be automatically refreshed at the interval specified in the refresh interval entry field provided (the default refresh interval is 5 minutes; the minimum refresh interval is 30 seconds). If the "Auto-refresh" check-box is not selected, the status information will not be automatically refreshed. The display can be manually refreshed at any time, however, by clicking the Refresh button.
5	Selecting the Alarm check-box invokes an instance of the Alarm Viewer dialog box which contains only the alarms that are currently active in the NE.
6	The Detail button invokes a View Configuration dialog box for the selected NE.

H

Status Panel Indicator Descriptions

Tables EM, EN, EO, and EP briefly explain the status indicators shown for each card in the NE.

Note: The status indicators explained in the following tables apply to both the TSG 3800 version D and TSG 3800 version E NEs.

Table EM explains the status indicators shown for the INP*X* boards.

Note: The X-Port input module is the only module supported in the current version of the TimePictra software.

Table EM. INP*X* Board Status Indicators

Indicator	Description
Power[a]	When green, power is applied.
Ref	When green, the clock modules are locked to one of the references applied to the module.
MOD	When red, a non-input signal-related fault condition exists on the module.
PT1[a]	When red, a fault condition exists with the input signal on port one of the module.
PT2[a]	When red, a fault condition exists with the input signal on port two of the module.
PT3[a]	When red, a fault condition exists with the input signal on port three of the module.

a.Represented functionally in the display.

H

Table EN explains the status indicators shown for the CPU board.

Table EN. CPU Board Status Indicators

Indicator	Description
Run[a]	When green, the module is receiving power and the processor is operational. When off, the processor is not operational.
Minor[a]	When yellow, a failure exists.
Power[a]	When yellow, one of the -48 V power inputs has failed.
CPU	When red, the microprocessor has malfunctioned. *Note:* This condition causes a major alarm.

Table EN. CPU Board Status Indicators (cont'd)

Indicator	Description
SYS	When red, a hardware fault exists within the TSG system. *Note:* This condition causes a major alarm.
Major[a]	When red, a loss of synchronization has occurred (immediate action required).
A (COMM ACTIVE)	When green, the front panel RS-232 port is in use. *Note:* The indicator is green only during data transfer.
B (COMM ACTIVE)	When green, the rear panel RS-232 port is in use. *Note:* The indicator is green only during data transfer.
ENET (COMM ACTIVE)	Ethernet packets are either transmitted or received.

a.Represented functionally in the display.

Table EO explains the status indicators shown for the CLK*X* boards.

Table EO. CLK*X* Board Status Indicators

Indicator[a]	Description
Power	When green, the module is receiving power.
Locked	When green, the unit is in normal mode of operation.
Selected	When green, the module is selected for providing outputs.
Ext Ref	*This indicator is not used.*
HoldOver	When yellow, the unit is in the holder mode of operation.
End of Range	When yellow, tuning is below 25% or above 75% of full scale.
Acquire	When yellow, the unit is in the acquire mode of operation.
Fault	When red and steady, a fault exists within the module. When red and blinking, the module is disabled.

a.All indicators are represented functionally in the display.

Table EP explains the status indicators shown for the FG*X* boards.

Table EP. FG*X* Board Status Indicators

Indicator	Description
Power[a]	When green, the module is receiving power.

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Table EP. FGX Board Status Indicators (cont'd)

Indicator	Description
Fault	When red and steady, a failure exists within the module. When red and blinking, the module is disabled.

a.Represented functionally in the display.

H

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the TSG 3800 versions D and E. The sub-sections within this section reflect the five setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- Network Element settings
- Input settings
- Threshold settings
- Clock settings
- Frame Generator settings

Each sub-section includes the following:

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL1 command or parameter code (or both) within the manufacturer's documentation where more detailed information on the particular setting can be found.

H

Network Element Settings

There are some networking settings as well as input reference settings that are configurable in this dialog box. Figures 123 and 124 show the layout of the action panel for Network Element settings, and Table EQ gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TSG 3800 version D or E documentation where more detailed information can be found.

Figure 123. Action Panel - Network Element Settings - TSG 3800 Version D

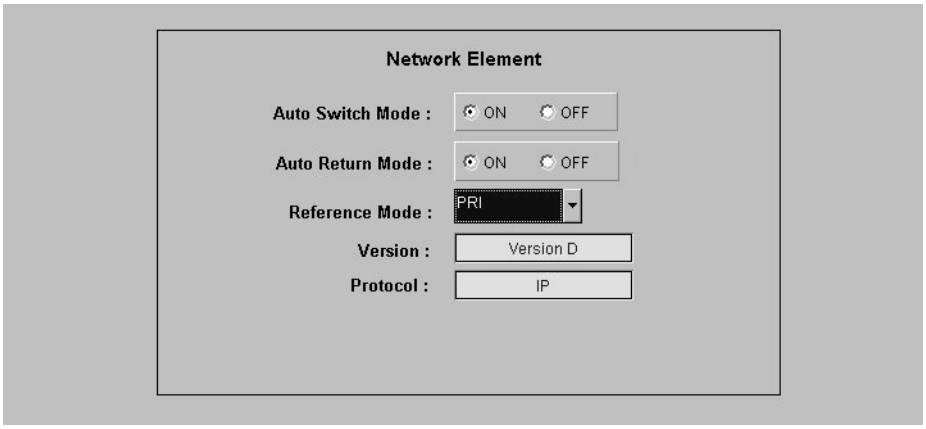

Figure 124. Action Panel - Network Element Settings - TSG 3800 Version E

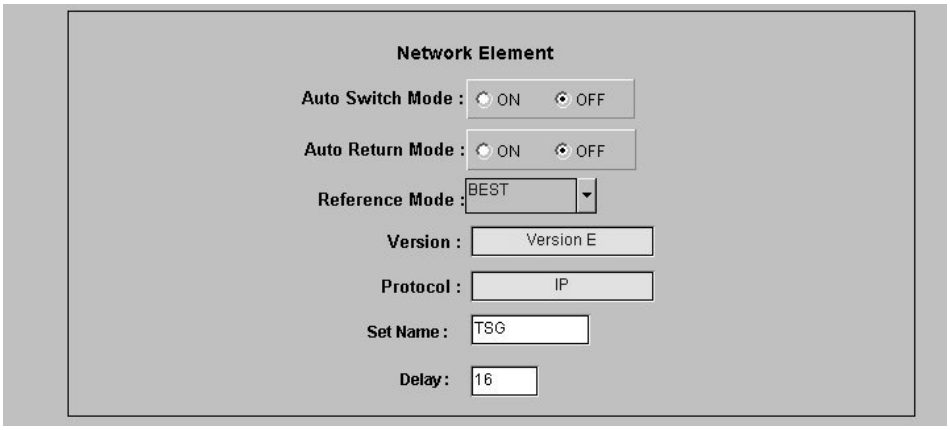

Table EQ. Network Element Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
Auto Switch Mode	TSG 3800 D TSG 3800 E	The state of auto switch mode.	RTRV-PRMTR-REF SET-PRMTR-REF
Auto Return Mode	TSG 3800 D TSG 3800 E	The state of auto return mode.	RTRV-PRMTR-REF SET-PRMTR-REF

Table EQ. Network Element Settings (cont'd)

Setting/Button	NE	Description	COMMAND (parameter)[a]
Delay	TSG 3800 E	The delay time before the SSM change is indicated.	RTRV-PRMTR-DELAY SET-PRMTR-DELAY
Protocol	TSG 3800 D TSG 3800 E	The communication protocol.	*None.*
Reference Mode	TSG 3800 D TSG 3800 E	The current reference mode.	RTRV-PRMTR-REF SET-PRMTR-REF
Set Name	TSG 3800 E	The TID of the unit.	SET-NAME
Version	TSG 3800 D TSG 3800 E	The firmware version.	RTRV-VER

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the TSG 3800 version D or E documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

H

Input Settings

There are several input-related settings that are configurable in this dialog box. Figures 125 and 126 show the layout of the action panel for Input settings, and Table ER gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TSG 3800 version D or E documentation where more detailed information can be found.

Figure 125. Action Panel - Input Settings - TSG 3800 Version D

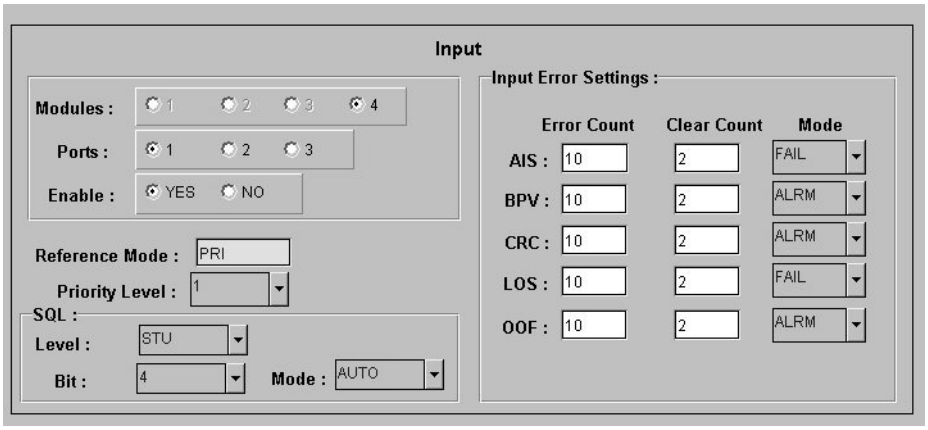

Figure 126. Action Panel - Input Settings - TSG 3800 Version E

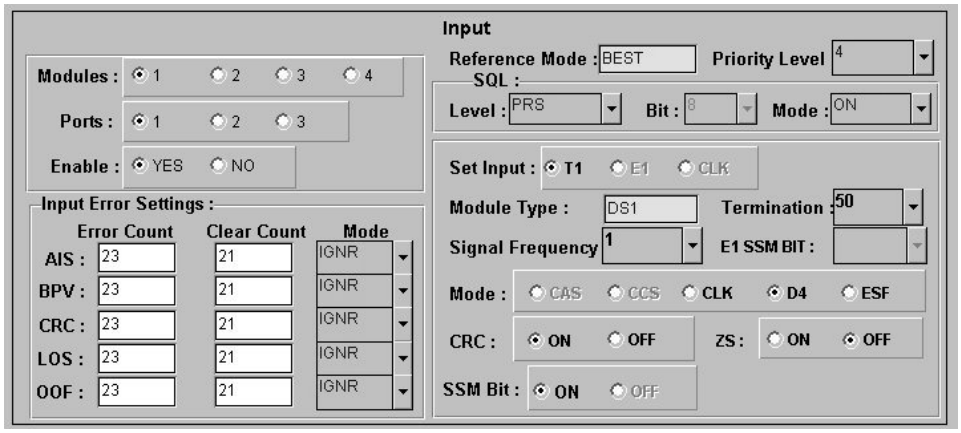

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Table ER. Input Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
		Module Selector	
Modules	TSG 3800 D TSG 3800 E	Selects which module to view the configuration for.	RTRV-COND-INP
		Port Selector	
Ports	TSG 3800 D TSG 3800 E	Selects which port to view the configuration for.	RTRV-COND-INP
		Port-Specific Settings[b]	
CRC	TSG 3800 E	The On/Off status of CRC.	RTRV-CONF SET-CONF
E1 SSM Bit	TSG 3800 E	The SSM bit setting for E1 units.	RTRV-CONF SET-CONF
Enable	TSG 3800 D TSG 3800 E	Enables or disables the selected port.	SET-ENA SET-DIS
Input Error Settings: Clear Count	TSG 3800 D TSG 3800 E	The input error clear count.	RTRV-PRMTR-AIS RTRV-PRMTR-BVP RTRV-PRMTR-CRC RTRV-PRMTR-LOS RTRV-PRMTR-OOF
Input Error Settings: Error Count	TSG 3800 D TSG 3800 E	The input error count.	RTRV-PRMTR-AIS RTRV-PRMTR-BVP RTRV-PRMTR-CRC RTRV-PRMTR-LOS RTRV-PRMTR-OOF
Input Error Settings: Mode	TSG 3800 D TSG 3800 E	The input error mode.	RTRV-PRMTR-AIS RTRV-PRMTR-BVP RTRV-PRMTR-CRC RTRV-PRMTR-LOS RTRV-PRMTR-OOF
Mode	TSG 3800 E	The clock signal type.	RTRV-CONF
Module Type	TSG 3800 E	The signal type produced by the unit.	RTRV-CONF
Priority Level	TSG 3800 D TSG 3800 E	The input priority level.	RTRV-PRMTR-PRI SET-PRMTR-PRI
Reference Mode	TSG 3800 D TSG 3800 E	The input reference mode.	RTRV-PRMTR-REF
Set Input	TSG 3800 E	Sets the input on modules that can take multiple types of inputs, and/or displays the current input type accepted.	RTRV-CONF SET-CONF

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Table ER. Input Settings (cont'd)

Setting/Button	NE	Description	COMMAND (parameter)[a]
Signal Frequency	TSG 3800 E	The signal frequency of the input.	RTRV-CONF SET-CONF
SQL: Bit	TSG 3800 D TSG 3800 E	The bit for E1 sync status messages.	RTRV-PRMTR-SQL SET-PRMTR-SQL
SQL: Level	TSG 3800 D TSG 3800 E	The sync quality assigned.	RTRV-PRMTR-SQL SET-PRMTR-SQL
SQL: Mode	TSG 3800 D TSG 3800 E	The SQL mode.	RTRV-PRMTR-SQL SET-PRMTR-SQL
SSM Bit	TSG 3800 E	The status of the SSM bit.	RTRV-CONF
Termination	TSG 3800 E	The termination value.	RTRV-CONF SET-CONF
ZS	TSG 3800 E	The current status of the ZS setting.	RTRV-CONF SET-CONF

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the TSG 3800 version D or E documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Port-Specific Settings* apply specifically to the input port specified by the Module and Port Selectors.

H

Threshold Settings

There are several threshold-related settings that are configurable in this dialog box. Figure 127 shows the layout of the action panel for Threshold settings, and Table ES gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TSG 3800 version D or E documentation where more detailed information can be found.

Figure 127. Action Panel - Threshold Settings - TSG 3800 Versions D and E

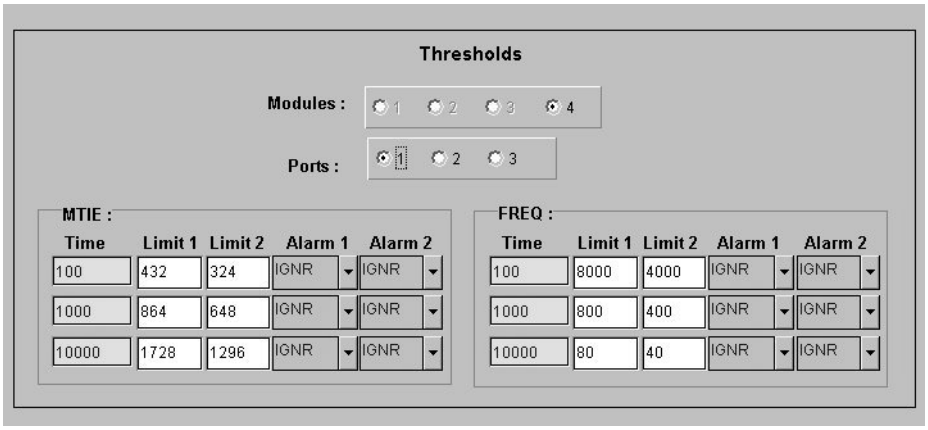

Table ES. Threshold Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
		Module Selector	
Modules	TSG 3800 D TSG 3800 E	Selects which module to view the configuration for.	RTRV-COND-INP
		Port Selector	
Ports	TSG 3800 D TSG 3800 E	Selects which port to view the configuration for.	RTRV-COND-INP
		Port-Specific Settings[b]	
Freq: Alarm 1	TSG 3800 D TSG 3800 E	Threshold alarm 1.	SET-PRMTR-FREQ RTRV-PRMTR-FREQ
Freq: Alarm 2	TSG 3800 D TSG 3800 E	Threshold alarm 2.	SET-PRMTR-FREQ RTRV-PRMTR-FREQ
Freq: Limit 1	TSG 3800 D TSG 3800 E	Threshold limit 1.	SET-PRMTR-FREQ RTRV-PRMTR-FREQ
Freq: Limit 2	TSG 3800 D TSG 3800 E	Threshold limit 2.	SET-PRMTR-FREQ RTRV-PRMTR-FREQ

Table ES. Threshold Settings (cont'd)

Setting/Button	NE	Description	COMMAND (parameter)[a]
Freq: Time	TSG 3800 D TSG 3800 E	The time period of the measurement.	SET-PRMTR-FREQ RTRV-PRMTR-FREQ
MTIE: Alarm 1	TSG 3800 D TSG 3800 E	Threshold alarm 1.	SET-PRMTR-MTIE RTRV-PRMTR-MTIE
MTIE: Alarm 2	TSG 3800 D TSG 3800 E	Threshold alarm 2.	SET-PRMTR-MTIE RTRV-PRMTR-MTIE
MTIE: Limit 1	TSG 3800 D TSG 3800 E	Threshold limit 1.	SET-PRMTR-MTIE RTRV-PRMTR-MTIE
MTIE: Limit 2	TSG 3800 D TSG 3800 E	Threshold limit 2.	SET-PRMTR-MTIE RTRV-PRMTR-MTIE
MTIE: Time	TSG 3800 D TSG 3800 E	The time period of the measurement.	SET-PRMTR-MTIE RTRV-PRMTR-MTIE

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the TSG 3800 version D or E documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Port-Specific Settings* apply specifically to the input port specified by the Module and Port Selectors.

Clock Settings

There are several clock-related settings that are configurable in this dialog box. Figures 128 and 129 show the layout of the action panel for Clock settings, and Table ET gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TSG 3800 version D or E documentation where more detailed information can be found.

Figure 128. Action Panel - Clock Settings - TSG 3800 Version D

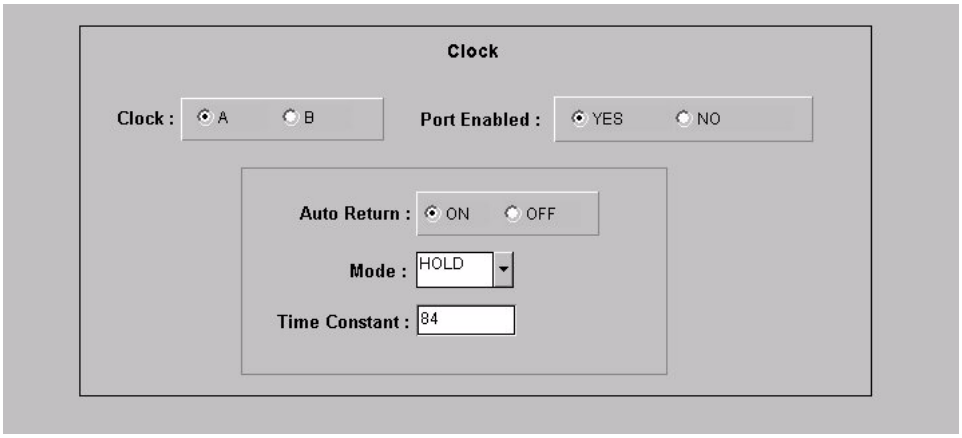

Figure 129. Action Panel - Clock Settings - TSG 3800 Version E

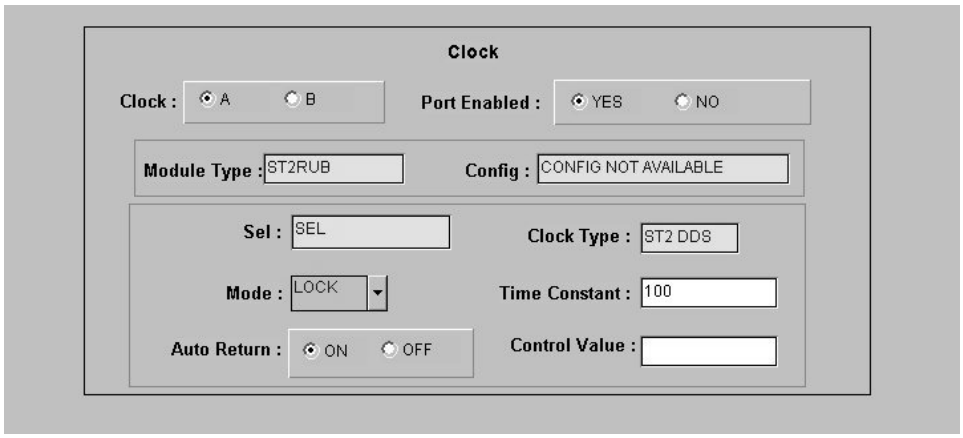

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Table ET. Clock Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
		Clock Selector	
Clock	TSG 3800 D TSG 3800 E	Selects which clock to view the configuration for.	RTRV-PRMTR-CLK
		Clock-Specific Settings[b]	
Auto Return	TSG 3800 D TSG 3800 E	The auto return setting.	RTRV-PRMTR-CLK SET-PRMTR-CLK
Clock Type	TSG 3800 E	The clock type of the module.	RTRV-CONF
Config	TSG 3800 E	Always returns "Config Not Available."	RTRV-CONF
Control Value	TSG 3800 E	The Tau value of the unit.	SET-CLK
Mode	TSG 3800 D TSG 3800 E	The clock mode.	RTRV-PRMTR-CLK SET-PRMTR-CLK
Module Type	TSG 3800 E	The type of module.	RTRV-CONF
Port Enabled	TSG 3800 D TSG 3800 E	Enables or disables the clock card.	SET-ENA SET-DIS
Sel	TSG 3800 E	Indicates whether or not the unit is selected.	RTRV-PRMTR-CLK
Time Constant	TSG 3800 D TSG 3800 E	Tau value for control loop.	RTRV-DATA-CLK SET-DATA-CLK

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the TSG 3800 version D or E documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.
b.*Clock-Specific Settings* apply specifically to the clock specified by the Clock Selector.

Frame Generator Settings

There are several Frame Generator-related settings that are configurable in this dialog box. Figures 130 and 131 show the layout of the action panel for Frame Generator settings, and Table EU gives a brief description of each setting. The COMMAND column in the table provides a reference point in the TSG 3800 version D or E documentation where more detailed information can be found.

Figure 130. Action Panel - Frame Generator Settings - TSG 3800 Version D

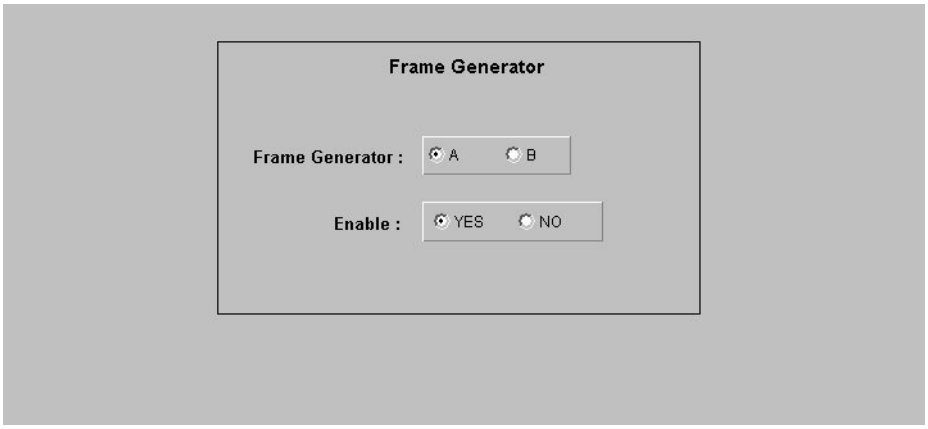
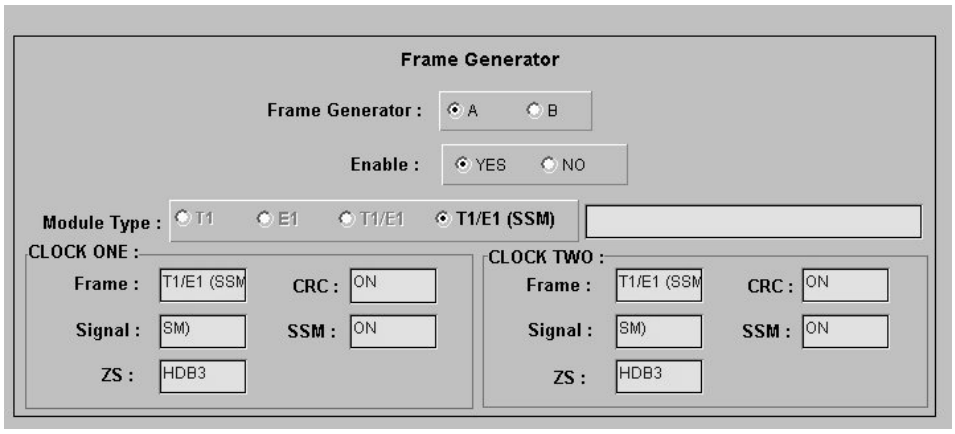


Figure 131. Action Panel - Frame Generator Settings - TSG 3800 Version E



H

Table EU. Frame Generator Settings

Setting/Button	NE	Description	COMMAND (parameter)[a]
Frame Generator Selector			
Frame Generator	TSG 3800 D TSG 3800 E	Selects which Frame Generator to view the configuration for.	RTRV-COND-EQPT
Frame Generator-Specific Setting[b]			
CRC	TSG 3800 E	The CRC setting for the clock module.	RTRV-CONF
Enable	TSG 3800 D TSG 3800 E	Enables or disables the selected Frame Generator	SET-ENA SET-DIS
Frame	TSG 3800 E	The frame type of the unit.	RTRV-CONF
Module Type	TSG 3800 E	The signal type of the unit.	RTRV-CONF
Signal	TSG 3800 E	The signal type of the module.	RTRV-CONF
SSM	TSG 3800 E	The SSM setting for the module.	RTRV-CONF
ZS	TSG 3800 E	The ZS setting for the module.	RTRV-CONF

a.Commands or Command/Parameters are provided in this column as a means of cross-referencing to more detailed information in the TSG 3800 version D or E documentation. Please note that the information in this column is not intended to be full TL1 command syntax for the features.

NE Information - SSU-2000

This chapter provides information and procedures that are specific to the SSU-2000 Network Element.

App. I

Network Element Status

The software contains a dialog box that summarizes the status of a selected SSU-2000 NE. This dialog box, the Network Element Status dialog box, presents a display which visually resembles the front panel of the NE. The dialog box view can also be changed to show details of the satellites being tracked by the NE. The following provides more information on the Network Element Status dialog box.

Network Element Status dialog box

The Network Element Status dialog box displays the status of the selected NE, or of the satellites being tracked by the NE. Figures 132 and 133 and Table EV briefly explain the Network Element Status dialog box for the SSU-2000.

Figure 132. SSU-2000 Network Element Status Dialog Box - Status Panel

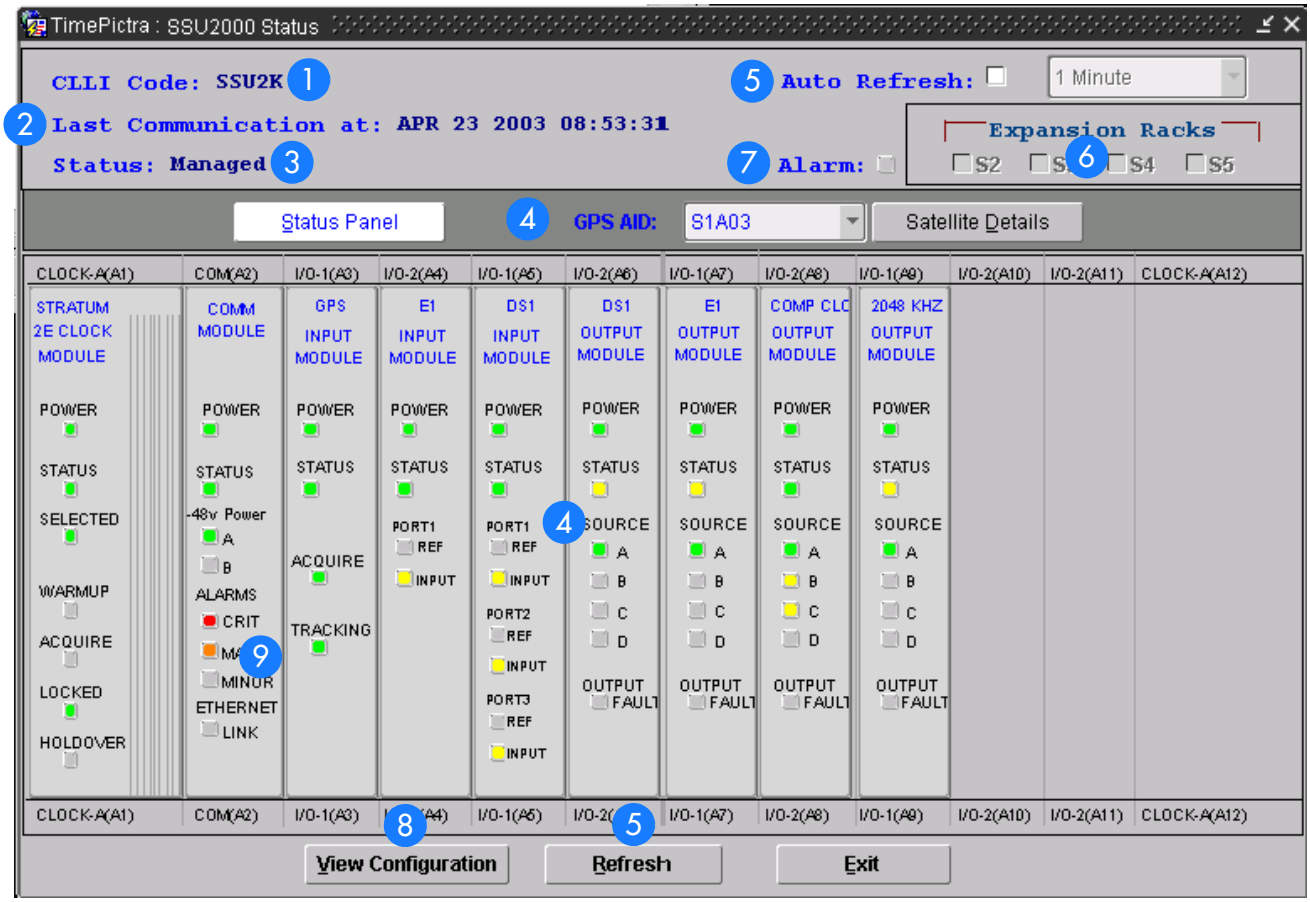


Figure 133. SSU-2000 Network Element Status Dialog Box - Satellite Details

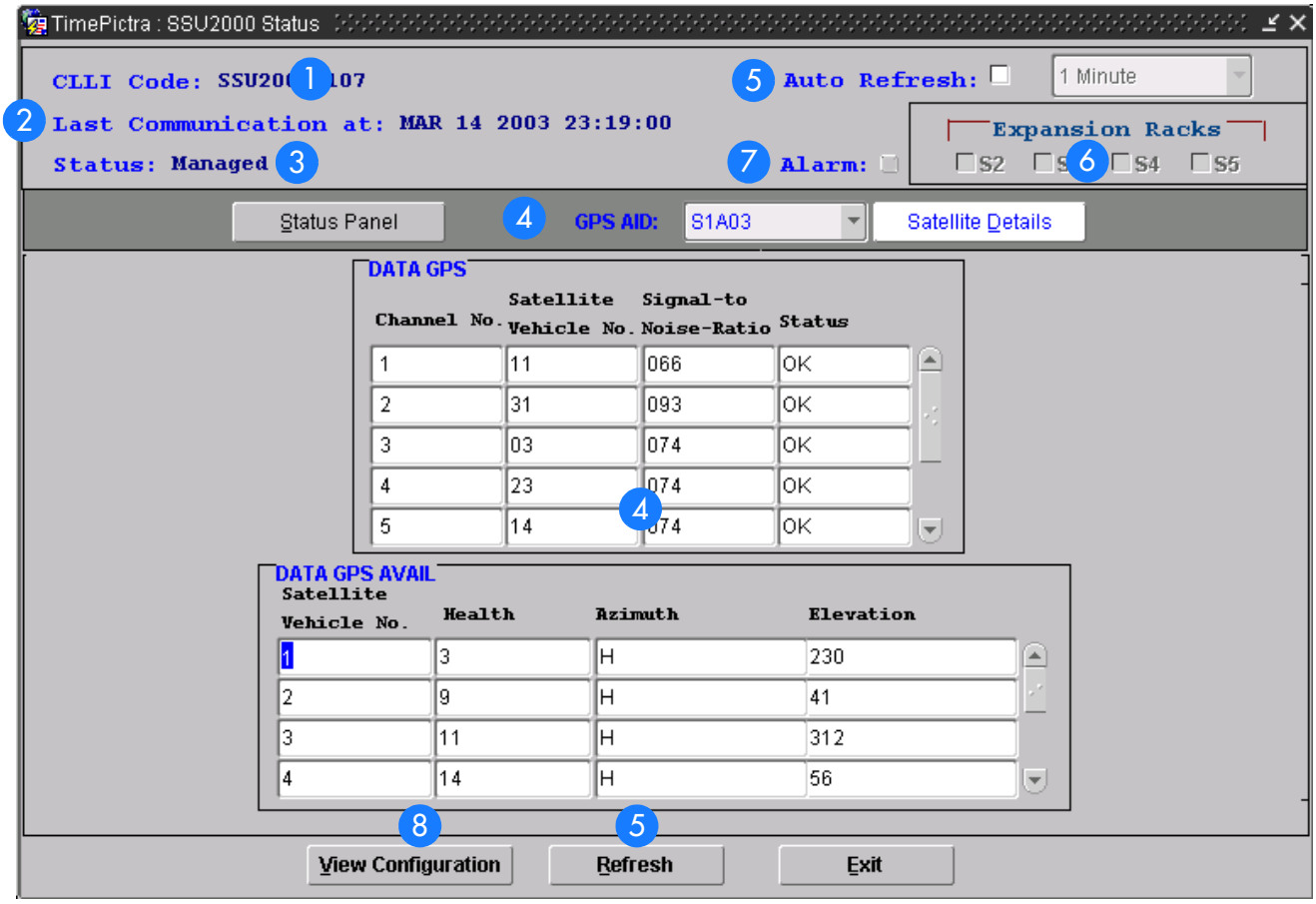


Table EV. Network Element Status Dialog Box Description

Item	Description
1	The CLLI code of the selected NE is shown here. This field cannot be edited; it reflects the NE that was selected on the synchronization network map or in the Launch Pad when the dialog box was invoked.
2	The last time TimePictra communicated with the network element, as the last time the network element was queried for it's status, is shown in this field.
3	The Status field reports that the selected NE is currently Managed.

Table EV. Network Element Status Dialog Box Description (cont'd)

Item	Description
4	The Status Panel and Satellite Details buttons can be clicked to determine the information displayed in the lower portion of the dialog box. When the Status Panel button has been clicked, the area functionally simulates the panel area of the selected NE, as shown in Figure 132. It shows the current status of the various indicators on the NE's front panel. When the Satellite Details button has been clicked, the area displays tracking data for the satellites currently being tracked, as shown in Figure 133. *Notes:* 1. If more than one GPS Input module is installed in the NE, the GPS AID drop-down list can be used to select the module for which you want to view the satellite details. 2. If the selected NE is unmanaged, the Network Element Status dialog box cannot be invoked. 3. If the selected NE is unavailable, the display area will be blank and the message `Could not Retrieve Status...` will be displayed.
5	The Auto Refresh interval determines the frequency at which the status display is automatically updated. The default refresh interval is 1 minute, and is also the minimum refresh interval. The status display can be updated at any time by clicking the Refresh button. If the Auto Refresh check-box is not selected, the display will not be automatically updated at the refresh interval, but can be manually refreshed by clicking the Refresh button. *Notes:* 1. By default, the Auto Refresh check-box is not selected when the dialog box is invoked. 2. A status display that is minimized (iconized) might pop up after the refresh interval expires. To avert this, deselect the Auto Refresh check-box before minimizing the status display. This also has the advantage of avoiding unnecessary queries to the NE. 3. If, upon refreshing the display, the software detects that the NE has been deleted, a warning message is displayed and then the display closes.
6	Selecting an Expansion Racks check-box ("S2," "S3," "S4," or "S5") invokes and displays an expansion rack dialog box containing the expansion shelf cards within the expansion rack. Deselecting the check-box closes the expansion rack dialog box. *Note:* If a given expansion rack is not present in the NE's configuration, the label and check-box for it will be inactive and appear grayed out.
7	Clicking the Alarm button invokes an instance of the Alarm Viewer dialog box which contains the alarms currently active in the NE.
8	Clicking the View Configuration button invokes an instance of the View Configuration dialog box in which the current configuration of the NE can be viewed.
9	*Status Panel Only* Clicking on one of the alarm indicators in the COMM MODULE panel invokes an instance of the Alarm Viewer dialog box which contains the alarms currently active in the NE that match the severity of the indicator that was clicked.

Status Panel Indicator Descriptions

The following tables briefly explain the status indications shown for each card that might be installed in the NE.

Stratum 2E Clock Module

Table EW explains the status indicators shown for the Stratum 2E Clock Module card.

Table EW. Stratum 2E Clock Module Status Indicators

Indicator	Description
POWER	If green, the Clock module is receiving power. If off, no power is present.
STATUS	If green, no faults have been detected. If yellow, the clock module is either downloading firmware, or an unknown Clock module status or fault has been detected.
SELECTED	If green, the Clock module is selected for providing outputs. If off, the Clock module is not selected.
WARMUP	If yellow, the Clock module is in warm-up mode. If off, the Clock module has completed warmup.
ACQUIRE	If green, the Clock module is acquiring a lock on a signal. If off, the Clock module is not acquiring a lock on a signal.
LOCKED	If green, the Clock module is locked on a signal. if off, the Clock module is not locked on a signal.
HOLDOVER	If yellow, the Clock module is in Holdover mode of operation. If off, the Clock module is not in Holdover mode.

Stratum 3E Clock Module

Table EX explains the status indicators shown for the Stratum 3E Clock Module card.

Table EX. Stratum 3E Clock Module Status Indicators

Indicator	Description
POWER	If green, the Clock module is receiving power. If off, no power is present.
STATUS	If green, no faults have been detected. If yellow, the clock module is either downloading firmware, or an unknown Clock module status or fault has been detected.

Table EX. Stratum 3E Clock Module Status Indicators (cont'd)

Indicator	Description
SELECTED	If green, the Clock module is selected for providing outputs. If off, the Clock module is not selected.
WARMUP	If yellow, the Clock module is in warm-up mode. If off, the Clock module has completed warmup.
ACQUIRE	If green, the Clock module is acquiring a lock on a signal. If off, the Clock module is not acquiring a lock on a signal.
LOCKED	If green, the Clock module is locked on a signal. if off, the Clock module is not locked on a signal.
HOLDOVER	If yellow, the Clock module is in Holdover mode of operation. If off, the Clock module is not in Holdover mode.

Communications Module (Comm Module)

Table EY explains the status indicators shown for the Communications Module card.

Table EY. Communications Module Status Indicators

Indicator	Description
POWER	If green, the Communications module is receiving power. If off, no power is present.
STATUS	If green, no faults have been detected. If yellow, the Communications module is either downloading firmware, or a fault has been detected.
–48v Power A *and* B	If green, the -48v power is connected. If off, the -48v power is not connected.
CRIT	If red, a Critical system alarm is present. If off, no Critical system alarm is present.
MAJOR	If yellow, a Major system alarm is present. If off, no Major system alarm is present.
MINOR	If yellow, a Minor system alarm is present. If off, no Minor system alarm is present.
ETHERNET LINK	If green, a physical Ethernet connection is made. If off, no physical Ethernet connection is made.

GPS Input Module

Table EZ explains the status indicators shown for the GPS Input Module card.

Table EZ. GPS Input Module Status Indicators

Indicator	Description
POWER	If green, the GPS Input module is receiving +5vDC power. If off, no power is present.
STATUS	If green, the module is in the Normal mode of operation (no faults). If yellow, a fault condition has been detected (the firmware timed out).
ACQUIRE	If green, the module is selected as the clock reference. If off, the module is not selected as clock reference.
TRACKING	If green, RADIO is tracking. If yellow, the module is either experiencing a tracking problem without an antenna fault, or is experiencing an antenna fault.

E1 Input Module

Table FA explains the status indicators shown for the E1 Input Module card.

Table FA. E1 Input Module Status Indicators

Indicator		Description
POWER	Green	If green, the module is receiving +5 vDC power. If off, no power is present.
STATUS	Green/Yellow	If green, the module is in the Normal mode of operation (no faults). If yellow, a fault condition has been detected.
PORT 1, 2, 3[a] REF	Green/Yellow	On (Green) = Selected. On (Yellow) = Not good and ignored. Off = ignored or good and not selected.
PORT 1, 2, 3[a] INPUT	Green/Yellow	On (Green) = Selected. On (Yellow) = Not good and ignored. Off = ignored or good and not selected.

a.The Port 2 and Port 3 indicators are not shown on 1-Port E1 Input Module status panels.

DS1 Input Module

Table FB explains the status indicators shown for the DS1 Input Module card.

Table FB. DS1 Input Module Status Indicators

Indicator		Description
POWER	Green	If green, the module is receiving +5 vDC power. If off, no power is present.

Table FB. DS1 Input Module Status Indicators (cont'd)

Indicator		Description
STATUS	Green/Yellow	If green, the module is in the Normal mode of operation (no faults). If yellow, a fault condition has been detected.
PORT 1, 2, 3[a] REF	Green/Yellow	On (Green) = Selected. On (Yellow) = Not good and ignored. Off = ignored or good and not selected.
PORT 1, 2, 3[a] INPUT	Green/Yellow	On (Green) = Selected. On (Yellow) = Not good and ignored. Off = ignored or good and not selected.

a.The Port 2 and Port 3 indicators are not shown on 1-Port DS1 Input Module status panels.

E1 Output Module

Table FC explains the status indicators shown for the E1 Output Module card.

Table FC. E1 Output Module Status Indicators

Indicator	Description
POWER	If green, +5 vDC power is available on the module. If off, +5 vDC is not present on the module.
STATUS	If green, the module is functioning correctly . If yellow, the module is either downloading firmware, or is experiencing a module failure.
SOURCE A	If green, source A is the selected source clock. If yellow, source A is faulty or missing. If off, source A is either ignored, or good and not selected.
SOURCE B	If green, source B is the selected source clock. If yellow, source B is faulty or missing. If off, source B is either ignored, or good and not selected.
SOURCE C	If green, source C is the selected source clock. If yellow, source C is faulty or missing. If off, source C is either ignored, or good and not selected.
SOURCE D	If green, source D is the selected source clock. If yellow, source D is faulty or missing. If off, source D is either ignored, or good and not selected.
OUTPUT FAULT	If yellow, the module has detected one or more faulty outputs. If off, all output signals are good.

DS1 Output Module

Table FD explains the status indicators shown for the DS1 Output Module card.

Table FD. DS1 Output Module Status Indicators

Indicator	Description
POWER	If green, +5 vDC power is available on the module. If off, +5 vDC is not present on the module.
STATUS	If green, the module is functioning correctly . If yellow, the module is either downloading firmware, or is experiencing a module failure.
SOURCE A	If green, source A is the selected source clock. If yellow, source A is faulty or missing. If off, source A is either ignored, or good and not selected.
SOURCE B	If green, source B is the selected source clock. If yellow, source B is faulty or missing. If off, source B is either ignored, or good and not selected.
SOURCE C	If green, source C is the selected source clock. If yellow, source C is faulty or missing. If off, source C is either ignored, or good and not selected.
SOURCE D	If green, source D is the selected source clock. If yellow, source D is faulty or missing. If off, source D is either ignored, or good and not selected.
OUTPUT FAULT	If yellow, the module has detected one or more faulty outputs. If off, all output signals are good.

Composite Clock (Comp Clc) Output Module

Table FE explains the status indicators shown for the Composite Clock Output Module card.

Table FE. Composite Clock Output Module Status Indicators

Indicator	Description
POWER	If green, +5 vDC power is available on the module. If off, +5 vDC is not present on the module.
STATUS	If green, the module is functioning correctly . If yellow, the module is either downloading firmware, or is experiencing a module failure.
SOURCE A	If green, source A is the selected source clock. If yellow, source A is faulty or missing. If off, source A is either ignored, or good and not selected.
SOURCE B	If green, source B is the selected source clock. If yellow, source B is faulty or missing. If off, source B is either ignored, or good and not selected.

Table FE. Composite Clock Output Module Status Indicators (cont'd)

Indicator	Description
SOURCE C	If green, source C is the selected source clock. If yellow, source C is faulty or missing. If off, source C is either ignored, or good and not selected.
SOURCE D	If green, source D is the selected source clock. If yellow, source D is faulty or missing. If off, source D is either ignored, or good and not selected.
OUTPUT FAULT	If yellow, the module has detected one or more faulty outputs. If off, all output signals are good.

2048 kHz Output Module

Table FF explains the status indicators shown for the 2048 kHz Output Module card.

Table FF. 2048 kHz Output Module Status Indicators

Indicator	Description
POWER	If green, +5 vDC power is available on the module. If off, +5 vDC is not present on the module.
STATUS	If green, the module is functioning correctly . If yellow, the module is either downloading firmware, or is experiencing a module failure.
SOURCE A	If green, source A is the selected source clock. If yellow, source A is faulty or missing. If off, source A is either ignored, or good and not selected.
SOURCE B	If green, source B is the selected source clock. If yellow, source B is faulty or missing. If off, source B is either ignored, or good and not selected.
SOURCE C	If green, source C is the selected source clock. If yellow, source C is faulty or missing. If off, source C is either ignored, or good and not selected.
SOURCE D	If green, source D is the selected source clock. If yellow, source D is faulty or missing. If off, source D is either ignored, or good and not selected.
OUTPUT FAULT	If yellow, the module has detected one or more faulty outputs. If off, all output signals are good.

Buffer Module

Table FG explains the status indicators shown for the Buffer Module card.

Table FG. Buffer Module Status Indicators

Indicator	Description
POWER	If green, the module is receiving +5 vDC power. If off, +5 vDC power has been lost.
STATUS	If green, the module is in the normal mode of operation (no faults). If yellow, the module is either downloading firmware, its status is unknown, or a fault has been detected.
-48V Power A	If green input power is being received from Power A. If yellow, the power connections are reversed. If off, input Power A has been lost.
-48V Power B	If green input power is being received from Power B. If yellow, the power connections are reversed. If off, input Power B has been lost.

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the SSU-2000 NE. The sub-sections within this section reflect the six setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- Network Element (NE) settings
- Card settings
- Input Port settings
- Output Card/Port settings
- Alarm settings
- Inventory settings

Each sub-section includes the following, where applicable:

- Screen captures of the action panels that can appear within the setting category.
- A table that indicates and briefly describes the settings within the category. This table also contains a cross-reference from each action panel setting to the listing for the TL/1 command and Keyword within the NE's documentation where more detailed information on the particular setting can be found.

I

Network Element (NE) Settings

The software communicates with NEs via a network connection. There are several networking settings that are configurable in NE Settings action panel. NE input reference selection and settings can also be viewed and modified in the NE Settings action panel.

Figure 134 shows the layout of the action panel for Network Element settings, also referred to as the System Module settings. Table FH gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the SSU-2000 documentation where more detailed information can be found.

Figure 134. Action Panel - Network Element (NE) Settings

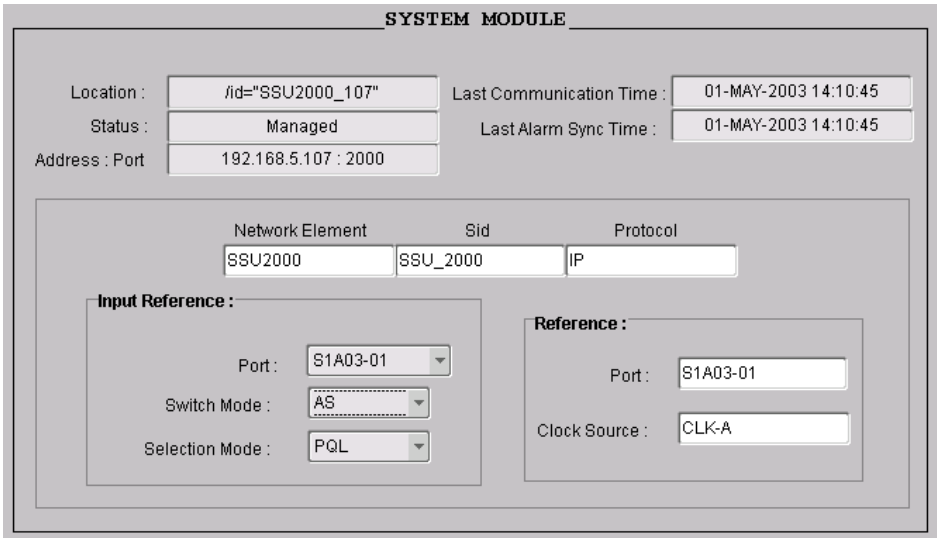


Table FH. Network Element (NE) Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Location	*NE*	The location of the NE.	*None*
Status	*NE*	The current management status of the NE.	*None*
Address : Port	*NE*	The NE's IP address and port.	*None*
Last Communication Time	*NE*	The time and date when communications last took place with the NE.	*None*
Last Alarm Sync Time	*NE*	The date and time at which the alarm synchronization process last took place on the NE.	*None*
Network Element	*NE*	The NE type.	*None*
SID	*NE*	The name of the NE.	SET-NAME

Table FH. Network Element (NE) Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Protocol	*NE*	The communications protocol that TimePictra is using to communicate with the NE.	*None*
		Input Reference	
Port	*NE*	Allows selection of input reference port.	SET-INPUT-REF (port)
Switch Mode	*NE*	Selects either auto-return (revertive) selection, auto-switch (non-revertive), or no auto reference switching mode.	SET-INPUT-REF (swtmode)
Selection Mode	*NE*	Selects either priority quality level or status message selection of reference inputs	SET-INPUT-REF (selmode)
		Reference	
Port	*NE*	The input port currently being used as a reference.	RTRV-REF (port)
Clock Source	*NE*	The clock module currently being used as the reference.	RTRV-REF (clksrc)

a.Commands and the keywords in parentheses are provided in this column as a means of cross-referencing to more detailed information in the SSU-2000 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Card Settings

The Card Settings action panel allows viewing and configuration of various settings for each of the cards in the NE. Figures 135, 136, and 137 show the layout of the action panel for the card settings. Table FI gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the SSU-2000 documentation where more detailed information can be found.

Figure 135. Action Panel - Card Settings (Clock Modules)

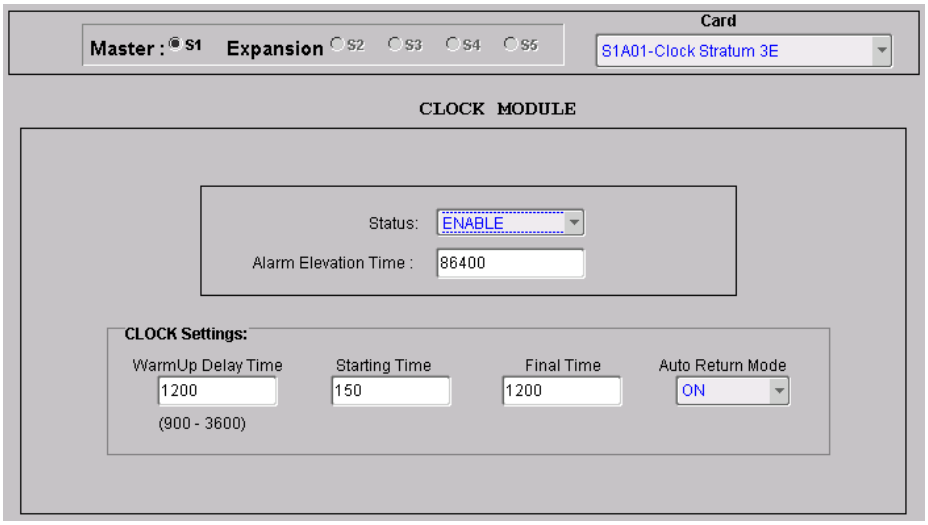


Figure 136. Action Panel - Card Settings (Communication Module)

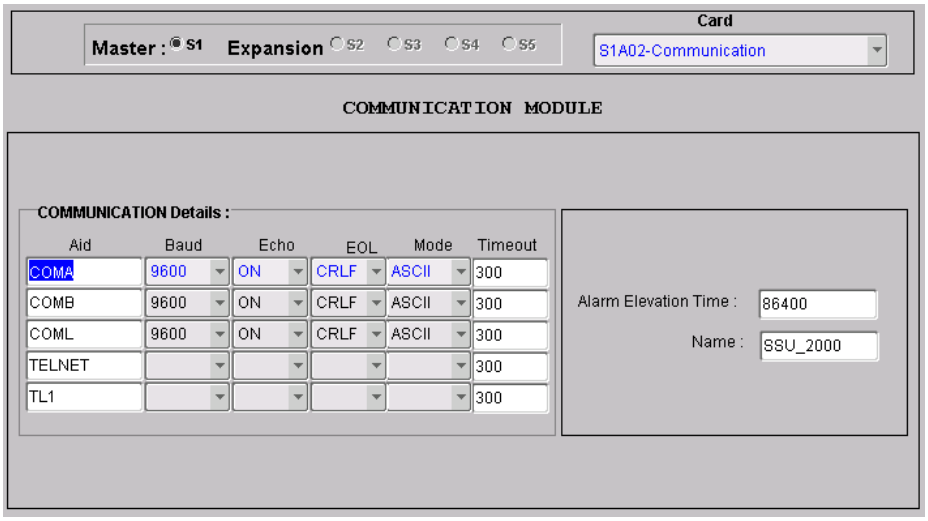


Figure 137. Action Panel - Card Settings (Input Modules)

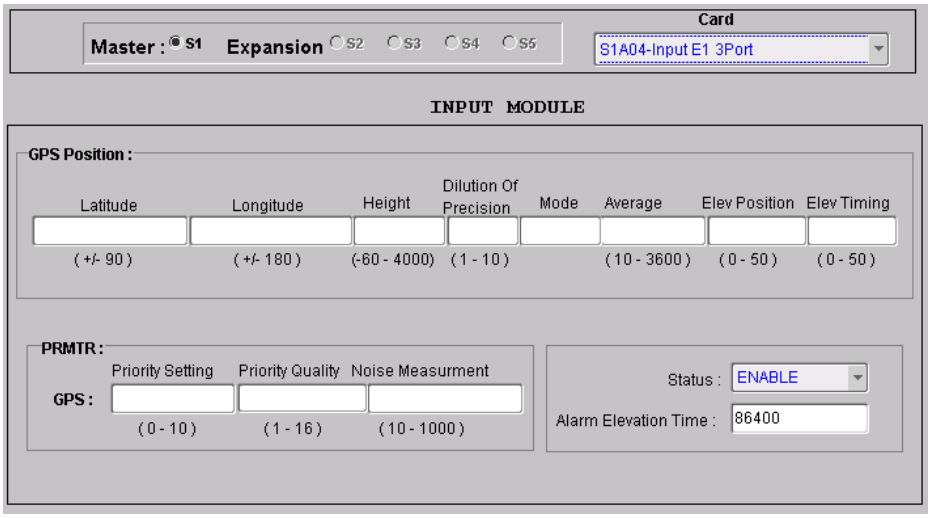


Table FI. Card Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Shelf Selector	
Master/ Expansion (radio buttons)	*All*	The selection made using these radio buttons specifies the equipment shelf to which the remainder of the card-specific parameters in the lower portion of the action panel apply.	*None*
		Card Selector	
Card	*All*	The selection made in this drop-down list specifies the card to which the remainder of the card-specific settings in the lower portion of the action panel apply.	*None*
		Card Specific Settings	
Alarm Elevation Time	Clock, Comm, Input (all)	Sets the elevation time-out for all alarms created by the module.	SET-PRMTR-ELTIME
Name	Comm	The name of the module.	RTRV-NAME SET-NAME
Status	Clock, Input (all)	Enables or disables the module.	ACT-MODULE DISC-MODULE
		Clock Settings	
Warmup Delay Time	Clock	Sets the warmup time constant of the selected clock.	SET-PRMTR-CLK (warmup)

Table FI. Card Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Starting Time	Clock	Sets the starting time constant of the selected clock.	SET-PRMTR-CLK (mintau)
Final Time	Clock	Sets the final time constant of the selected clock.	SET-PRMTR-CLK (maxtau)
Auto Return Mode	Clock	The current setting of the clock Auto-Return mode.	RTRV-PRMTR-CLK (clkar)
Communication Details			
Aid	Comm	The communications port aid to which the other parameters in the row apply.	RTRV-PRMTR-COMM (aid)
Baud	Comm	Sets the baud rate of the specified communications port. *Note:* Not applicable to the Telnet and TL1 aids.	SET-PRMTR-COMM (baud)
Echo	Comm	Sets either full or half duplex on the specified communications port. *Note:* Not applicable to the Telnet and TL1 aids.	SET-PRMTR-COMM (echo)
EOL	Comm	Sets the end-of-line character(s) sent on the specified communications port. *Note:* Not applicable to the Telnet and TL1 aids.	SET-PRMTR-COMM (eol)
Mode	Comm	Sets the mode of the specified communications port (ASCII or TL1). *Note:* Not applicable to the Telnet and TL1 aids.	SET-PRMTR-COMM (mode)
Timeout	Comm	Sets the inactivity timeout period for the specified communications port.	SET-PRMTR-COMM (tout)
GPS Position			
Latitude	GPS Input	Sets the latitude of the receiver.	SET-GPS-POS (lat)
Longitude	GPS Input	Sets the longitude of the receiver.	SET-GPS-POS (lon)
Height	GPS Input	Sets the height of the receiver.	SET-GPS-POS (hgt)
Dilution of Precision	GPS Input	Sets the position dilution of precision mask.	SET-GPS-POS (pdop)
Mode	GPS Input	The GPS positioning mode currently being used.	RTRV-GPS-POS (mode)
Average	GPS Input	Sets the position averaging value.	SET-GPS-POS (avg)
Elev Position	GPS Input	Sets the minimum satellite elevation to use for positioning.	SET-GPS-POS (posel)
Elev Timing	GPS Input	Sets the minimum satellite elevation to use for timing.	SET-GPS-POS (timel)
PRMTR Settings			
Priority Setting	GPS Input	Sets the input priority setting.	SET-PRMTR-GPS (pri)

Table FI. Card Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Priority Quality	GPS Input	Sets the priority quality level.	SET-PRMTR-GPS (pql)
Noise Measurement	GPS Input	Sets the noise measurement limit.	SET-PRMTR-GPS (sigma)

a.Commands and the keywords in parentheses are provided in this column as a means of cross-referencing to more detailed information in the SSU-2000 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Input Port Settings

When installed in the NE, 1-Port and 3-port E1 or DS1 Input modules receive signals and perform phase measurement comparisons with the Clock modules that are installed in the NE. The Clock modules use the phase measurement information to phase and frequency lock to the incoming signal.

Input modules automatically calculate MTIE for inputs, and log alarms if the MTIE calculation for any of several window sizes exceeds standard or user-set masks being used. Input modules maintain two alarm masks, each with thresholds at 10, 100, 1000, and 10000 seconds. MTIE readings which violate either mask at any point cause an alarm at the standard or user-set levels.

The input ports accept one (on 1-Port E1/DS1 Input modules), or three (on 3-Port E1/DS1 Input modules) of the following signals: sine or square wave, with a frequency of 1, 1.544, 2.048, 5 or 10 MHz, or framed communication type E1/DS1 (depending on the module). If the input signal is a communications type, the module monitors for Alarm Indication Signaling (AIS), Bipolar Violations (BPVs), Loss of Signal (LOS) and Out Of Frame (OOF) errors. In addition, the module extracts Synchronization Status Messages (SSMs) from the incoming data.

There are several input port settings that are configurable in the Input Port Settings action panel. Figure 138 shows the layout of the action panel for input ports. Table FJ gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the SSU-2000 documentation where more detailed information can be found.

Figure 138. Action Panel - Input Port Settings

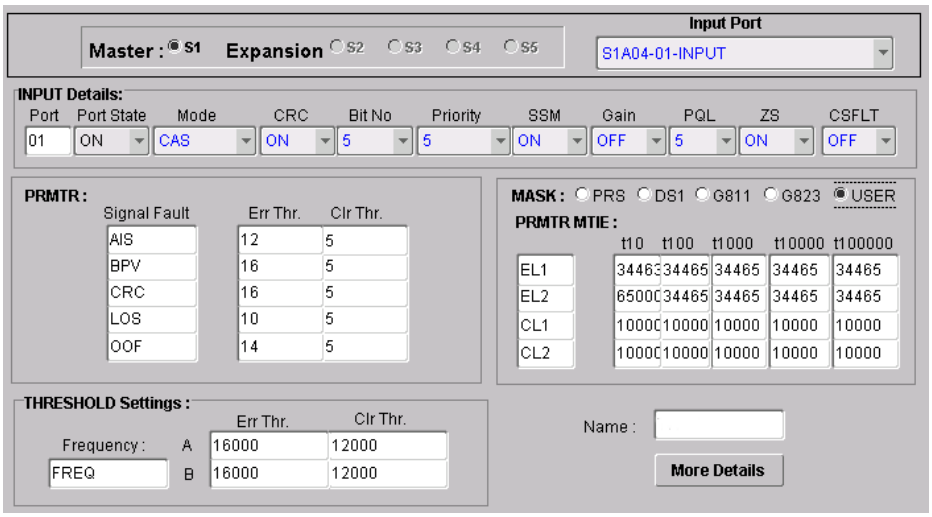


Table FJ. Input Port Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Shelf Selector	

Table FJ. Input Port Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Master/ Expansion (radio buttons)	*All*	The selection made using these radio buttons specifies the equipment shelf to which the remainder of the input port-specific parameters in the lower portion of the action panel apply.	*None*
		Input Port Selector	
Input Port	*All*	The selection made in this drop-down list specifies the input port to which the remainder of the input port-specific settings in the lower portion of the action panel apply.	*None*
		Input Details	
Port	E1 Input, DS1 Input	The input port to which the remainder of the settings in the row apply.	RTRV-PRMTR-INPUT (aid)
Port State	E1 Input, DS1 Input	Sets whether the port is enabled or disabled.	SET-PRMTR-INPUT (pstate)
Mode	E1 Input, DS1 Input	Sets the framing mode or clock frequency.	SET-PRMTR-INPUT (mode)
CRC	E1 Input, DS1 Input	Turns error checking on or off.	SET-PRMTR-INPUT (crc)
Bit No	E1 Input, DS1 Input	Sets the bit number (4-8) of the time-slot 0 word used for the E1 sync status message. *Note:* For DS1 inputs, this setting is ignored.	SET-PRMTR-INPUT (bit)
Priority	E1 Input, DS1 Input	Sets the priority level of the input port.	SET-PRMTR-INPUT (pri)
SSM	E1 Input, DS1 Input	Determines whether incoming sync status messages should be read or ignored.	SET-PRMTR-INPUT (ssm)
Gain	E1 Input, DS1 Input	Sets whether input gain is on or off.	SET-PRMTR-INPUT (gain)
PQL	E1 Input, DS1 Input	Sets the input's provisioned priority quality level.	SET-PRMTR-INPUT (pql)
ZS	E1 Input, DS1 Input	Sets whether zero suppression is on or off.	SET-PRMTR-INPUT (zs)
CSFLT	E1 Input, DS1 Input	Sets the Cesium fault logic level.	SET-PRMTR-INPUT (csflt)
		Mask Settings	
Mask (radio buttons)	E1 Input, DS1 Input	Sets a pre-defined MTIE mask, or selects the user defined MTIE mask.	SET-MTIE-MASK

Table FJ. Input Port Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
PRMTR MTIE t10	E1 Input, DS1 Input	Sets the user-defined MTIE mask error limit 1 (EL1), error limit 2 (EL2), clear limit 1 (CL1), or clear limit 2 (CL2), threshold for the t10 measurement time period. *Note:* Settable only when the "USER" MASK radio button is selected, otherwise, this field is read-only.	RTRV-PRMTR-MTIE SET-PRMTR-MTIE
PRMTR MTIE t100	E1 Input, DS1 Input	Sets the user-defined MTIE mask error limit 1 (EL1), error limit 2 (EL2), clear limit 1 (CL1), or clear limit 2 (CL2), threshold for the t100 measurement time period. *Note:* Settable only when the "USER" MASK radio button is selected, otherwise, this field is read-only.	RTRV-PRMTR-MTIE SET-PRMTR-MTIE
PRMTR MTIE t1000	E1 Input, DS1 Input	Sets the user-defined MTIE mask error limit 1 (EL1), error limit 2 (EL2), clear limit 1 (CL1), or clear limit 2 (CL2), threshold for the t1000 measurement time period. *Note:* Settable only when the "USER" MASK radio button is selected, otherwise, this field is read-only.	RTRV-PRMTR-MTIE SET-PRMTR-MTIE
PRMTR MTIE t10000	E1 Input, DS1 Input	Sets the user-defined MTIE mask error limit 1 (EL1), error limit 2 (EL2), clear limit 1 (CL1), or clear limit 2 (CL2), threshold for the t10000 measurement time period. *Note:* Settable only when the "USER" MASK radio button is selected, otherwise, this field is read-only.	RTRV-PRMTR-MTIE SET-PRMTR-MTIE
PRMTR MTIE t100000	E1 Input, DS1 Input	Sets the user-defined MTIE mask error limit 1 (EL1), error limit 2 (EL2), clear limit 1 (CL1), or clear limit 2 (CL2), threshold for the t100000 measurement time period. *Note:* Settable only when the "USER" MASK radio button is selected, otherwise, this field is read-only.	RTRV-PRMTR-MTIE SET-PRMTR-MTIE
		PRMTR	
Signal Fault	E1 Input, DS1 Input	The input alarm to which the remainder of the settings in the row apply.	RTRV-PRMTR-AIS RTRV-PRMTR-BPV RTRV-PRMTR-CRC RTRV-PRMTR-LOS RTRV-PRMTR-OOF
Err Thr.	E1 Input, DS1 Input	Sets the number of seconds to delay before reporting an AIS, BPV, CRC, LOS, or OOF error condition.	SET-PRMTR-AIS (errcnt) SET-PRMTR-BPV (errcnt) SET-PRMTR-CRC (errcnt) SET-PRMTR-LOS (errcnt) SET-PRMTR-OOF (errcnt)

Table FJ. Input Port Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Clr Thr.	E1 Input, DS1 Input	Sets the number of seconds to delay before clearing an AIS, BPV, CRC, LOS, or OOF error condition.	SET-PRMTR-AIS (clrcnt) SET-PRMTR-BPV (clrcnt) SET-PRMTR-CRC (clrcnt) SET-PRMTR-LOS (clrcnt) SET-PRMTR-OOF (clrcnt)
Threshold Settings			
Frequency	E1 Input, DS1 Input	The frequency alarm. The remainder of the threshold settings apply to this alarm.	RTRV-PRMTR-FREQ
Err Thr.	E1 Input, DS1 Input	Sets the error threshold for input versus Clock A (A), or input versus Clock B (B).	SET-PRMTR-FREQ (fae, fbe)
Clr Thr.	E1 Input, DS1 Input	Sets the clear threshold for input versus Clock A (A), or input versus Clock B (B).	SET-PRMTR-FREQ (fac, fbc)
Name	E1 Input, DS1 Input	Sets the name designation for the input port.	SET-NAME (aid)

a.Commands and the keywords in parentheses are provided in this column as a means of cross-referencing to more detailed information in the SSU-2000 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Output Card/Port Settings

The various output cards (E1, DS1, composite Clock, and 2048 kHz) that can be installed in the NE use one of three clock signals from the NE backplane to generate a phase-locked signal. This phase-locked signal is used to generate 20 output signals for distribution to networks.

There are several settings that are configurable in the Output Card/Port Settings action panel. Figure 139 shows the layout of the action panel for output card/port settings. Table FK gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the SSU-2000 documentation where more detailed information can be found.

Figure 139. Action Panel - Output Card/Port Settings

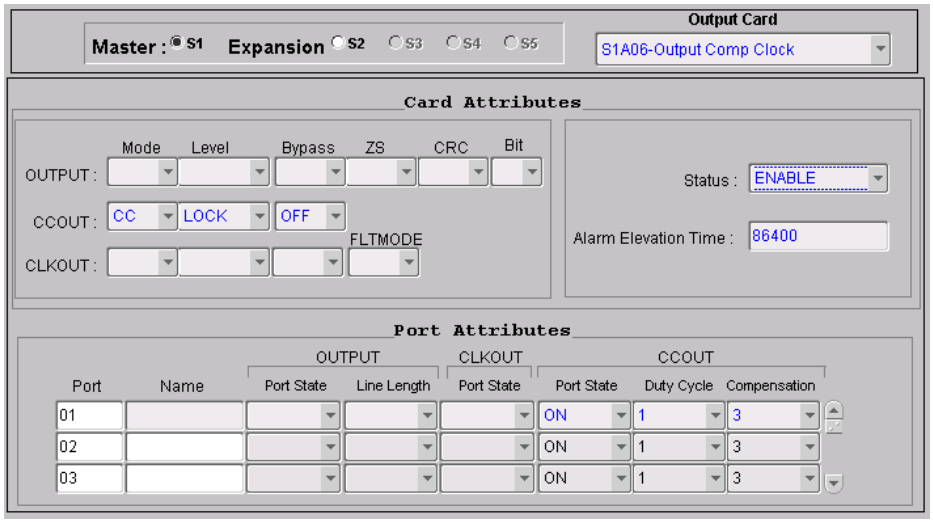


Table FK. Output Card/Port Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Shelf Selector	
Master/ Expansion (radio buttons)	*All*	The selection made using these radio buttons specifies the equipment shelf to which the remainder of the card and port attribute parameters in the lower portion of the action panel apply.	*None*
		Output Card Selector	
Output Card	*All*	The selection made in this drop-down list specifies the output card to which the remainder of the card and port attribute settings in the lower portion of the action panel apply.	*None*

Table FK. Output Card/Port Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Card Attributes			
Mode	E1 Output, DS1 Output	Sets the output port signal mode.	SET-PRMTR-OUTPUT (mode)
Level	Output (all)	Sets the condition when the outputs are turned on.	SET-PRMTR-OUTPUT (level) SET-PRMTR-CCOUT (level) SET-PRMTR-CLKOUT (level)
Bypass	Output (all)	Determines whether or not Clock C selection is allowed.	SET-PRMTR-OUTPUT (bypass) SET-PRMTR-CCOUT (bypass) SET-PRMTR-CLKOUT (bypass)
ZS	E1 Output, DS1 Output	Sets whether zero suppression is on or off.	SET-PRMTR-OUTPUT (zs)
CRC	E1 Output, DS1 Output	Sets whether error checking is on or off.	SET-PRMTR-OUTPUT (crc)
Bit	E1 Output, DS1 Output	Sets the SSM bit (4-8) for E1 sync status messages.	SET-PRMTR-OUTPUT (bit)
FLTMODE	2048 kHz Output	Determines whether or not the output level will be monitored for fault thresholds.	SET-PRMTR-CLKOUT (fltmode)
Alarm Elevation Time	Output (all)	Sets the elevation time-out for all alarms created by the module.	SET-PRMTR-ELTIME
Status	Output (all)	Enables or disables the module.	ACT-MODULE DISC-MODULE
Port Attributes			
Port	Output (all)	The output port to which the remainder of the settings in the row apply.	RTRV-PRMTR-OUTPUT (level) RTRV-PRMTR-CCOUT (level) RTRV-PRMTR-CLKOUT (level)
Name	Output (all)	Sets the name designation for the output port.	SET-NAME (aid)
Port State (OUTPUT)	E1 Output, DS1 Output	Sets whether the output port is enabled or disabled.	SET-PRMTR-OUTPUT (pstate)
Line Length	E1 Output, DS1 Output	Sets the output port line length.	SET-PRMTR-OUTPUT (len)
Port State (CLKOUT)	2048 kHz Output	Sets whether the output port is enabled or disabled.	SET-PRMTR-CLKOUT (pstate)
Port State (CCOUT)	Composite clock	Sets whether the output port is enabled or disabled.	SET-PRMTR-CCOUT (pstate)

Table FK. Output Card/Port Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
Duty Cycle	Composite clock	Sets the duty cycle to use.	SET-PRMTR-CCOUT (duty)
Compensation	Composite clock	Sets the phase compensation delay.	SET-PRMTR-CCOUT (pcomp)

a.Commands and the keywords in parentheses are provided in this column as a means of cross-referencing to more detailed information in the SSU-2000 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Alarm Settings

The Communications module within the SSU-2000 monitors the NE and logs events into non-volatile memory for inspection at a later time. In general, events are conditions within the NE or at the interfaces of the NE which might indicate abnormal operation or a change in the unit's operational status. Alarms are a type of event which typically indicates abnormal operation.

There are several settings that are configurable in the Alarm Settings action panel. Figure 140 shows the layout of the action panel for alarm settings. Table FL gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the SSU-2000 documentation where more detailed information can be found.

Figure 140. Action Panel - Alarm Settings

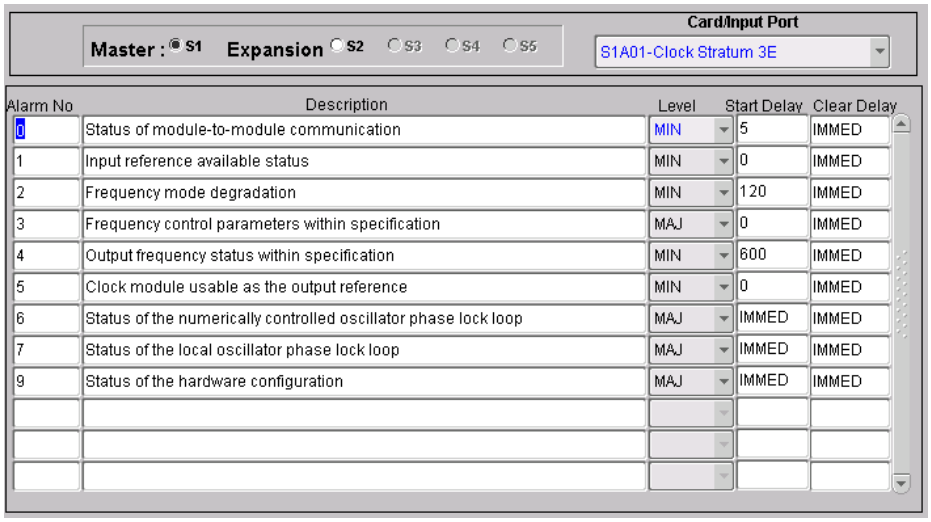


Table FL. Alarm Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Shelf Selector	
Master/ Expansion (radio buttons)	*All*	The selection made using these radio buttons specifies the equipment shelf to which the parameters in the lower portion of the action panel apply.	*None*
		Card/Input Port Selector	
Card/Input Port	*All*	The selection made in this drop-down list specifies the card or input port to which the remainder of the settings in the lower portion of the action panel apply.	*None*

Table FL. Alarm Settings (cont'd)

Setting/Button	Card	Description	COMMAND/KEYWORD[a]
		Alarm Settings	
Alarm No	Clock, Comm, Input (all), Output (all)	An internal number used for alarm identification. *Note:* Refer to Table FN in the section entitled *SSU-2000 Alarm Messages* for alarm descriptions.	RTRV-PRMTR-ALARM (almnum)
Description	Clock, Comm, Input (all), Output (all)	The description of the alarm, as retrieved from the NE. *Note:* Refer to Table FN in the section entitled *SSU-2000 Alarm Messages* for alarm descriptions.	RTRV-ALARM (condstr)
Level	Clock, Comm, Input (all), Output (all)	The level of the alarm.	SET-PRMTR-ALARM (level)
Start Delay	Clock, Comm, Input (all), Output (all)	Delay time or errored seconds count for start of the alarm. *Note:* Delay numbers are reported only if they are settable for the alarm; otherwise they are reported as IMMED (immediate).	SET-PRMTR-ALARM (errcnt)
Clear Delay	Clock, Comm, Input (all), Output (all)	Cleared seconds count for clearing of the alarm. *Note:* Delay numbers are reported only if they are settable for the alarm; otherwise they are reported as IMMED (immediate).	SET-PRMTR-ALARM (clrcnt)

a.Commands and the keywords in parentheses are provided in this column as a means of cross-referencing to more detailed information in the SSU-2000 documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Inventory

Clicking the Inventory context-switch button in the View Configuration or Modify Configuration dialog box invokes the NE Inventory dialog box. The NE Inventory dialog box allows you to view or manage the inventory of hardware resources within the SSU-2000.

Refer to the chapter entitled *Inventory Management* in this manual for details regarding inventory management.

Note: If the NE Inventory dialog box is invoked from the View Configuration dialog box, the SSU-2000 inventory can be viewed, but not modified.

Firmware Downloads

TimePictra contains functionality that enables the downloading of firmware upgrades to the various cards on an SSU-2000 from a file that is stored on the TimePictra server. The firmware code is downloaded to the specified card or cards on the selected NE using the Firmware Download dialog box.

Firmware Download Dialog Box

Figure 141 and Table FM briefly explain the Firmware Download dialog box.

Figure 141. Firmware Download Dialog Box

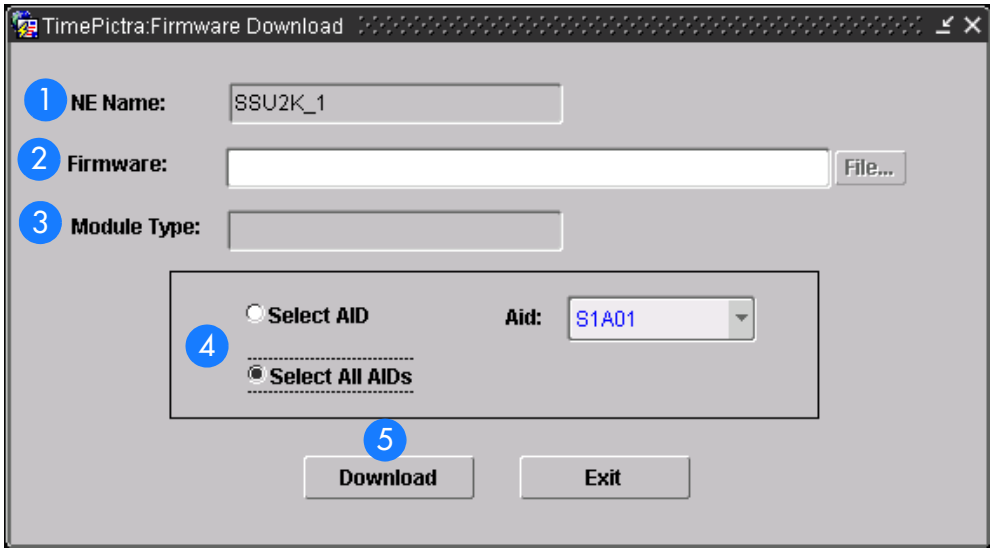


Table FM. Firmware Download Dialog Box Description

Item	Description
1	The name of the NE to where the firmware is to be downloaded (the target NE) appears in the NE Name field. The name of the NE that was selected on the map or Launch Pad prior to invoking this dialog box appears in this field; it cannot be changed in the dialog box.

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Table FM. Firmware Download Dialog Box Description (cont'd)

Item	Description
2	The full path and name of the file containing the firmware to be downloaded to the target card or cards is entered in the Firmware field. When the Firmware Download dialog box is invoked from the map, the File... button can be clicked to bring up a file browser, in which the firmware file can be located and selected. When the Firmware Download dialog box is invoked from the Launch Pad, The File... button is inactive. In this case, the full path on the TimePictra server where the firmware file is located, as well as the file name, must be entered into the Firmware field. *Notes:* 1. The firmware file can be stored in any directory on the server, but it is recommended that the file be stored under var/tmp, or a subdirectory of /var/tmp. The file should have read/execute permissions set for the owner, group, and others (`r-x r-x r-x`, or `555`). 2. A file is considered to be of the correct type if it has the extension `.DN1` or `.dn1`. If the file does not have the correct extension, the message `Wrong file type!` is returned.
3	If the file name and extension that is entered into the Firmware field follows correct conventions so that TimePictra recognizes it, the module type (COMM, INPUT DS1, etc.) appears in this field. *Note:* If TimePictra does not recognize the file name and type, the firmware download operation will not proceed.
4	These radio buttons determine the mode that is used when downloading firmware. • *Select AID* - If the Select AID radio button is selected, firmware downloading will take place only to the target card that is specified in the Aid drop-down list. • *Select All AIDs* - If the Select All AIDs radio button is selected, firmware downloading will take place to all cards for which the specified firmware file is valid. *Note:* In both cases, the specified firmware file is determined to be valid for the specified AID or AIDs by TimePictra, in accordance with file naming conventions.
5	Once all necessary information has been correctly entered into the Firmware Download dialog box, the Download button is clicked to begin the firmware download operation.

Downloading Firmware to the NE

Use Procedure CJ to download firmware upgrade files to target cards on the SSU-2000 NE.

Procedure CJ. Downloading Firmware

Step	Action

Note: Users of the Security class can perform this procedure.

Procedure CJ. Downloading Firmware (cont'd)

Step	Action
1	Ensure the firmware code to be downloaded is stored as a file on the TimePictra server. Also, note the following: Record the file name as well as the full directory path to the file. You might need to enter it later in this procedure. Ensure the Security-class user (sec) has read permission on the file. Ensure the validity of the firmware code instructions to be downloaded. TimePictra takes no automatic measures to ensure the validity of the firmware code before it is downloaded.
2	In the synchronization map or Launch Pad, click on the SSU-2000 NE that is the intended target for the firmware download.
3	Invoke the Firmware Download dialog box: *Synchronization Map* - Click TimePictra from main menu, then click Configuration, and then Firmware Download. *Launch Pad* - Choose Firmware Download... from the Config menu.
4	Specify the location on the TimePictra server where the firmware file is located: • *If the Firmware Download dialog box was invoked from the synchronization map*, click the File... button, then choose the path and file in the file browser that appears. • *If the Firmware Download dialog box was invoked from the Launch Pad*, enter the full path where the firmware file is located on the TimePictra server, as well as the file name, into the Firmware field, then press the Enter key on the TimePictra client's keyboard.
5	Specify the firmware download mode: • To download firmware to a specific target card, click the Select AID radio button, then select the appropriate target card in the Aid drop-down list. Selections in the Aid drop-down list appear in the following form: *rack-slot* where *rack* is S0 for the master subrack, or S1, S2, S3, or S4 for the expansion subracks, and *slot* is the SSU-2000 slot where the card that will be receiving the firmware download is installed. • To download firmware to all cards for which the specified firmware file is valid, click the Select All AIDs radio button. *Note:* TimePictra determines the validity of firmware files according to file naming conventions.

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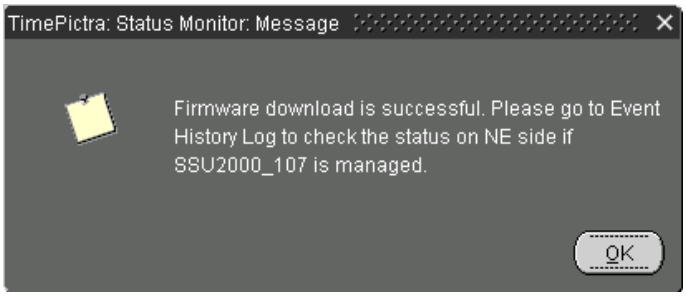
Step	Action
6	Click the Download button to begin the download operation. When the download operation begins, the message "`Downloading firmware to NE,...`" appears. The download operation might take several minutes. When the firmware download operation is complete, a message similar to the following appears:  *Notes:* • If the NE has never been previously managed by TimePictra, a dialog box will appear in which you must enter management information for the NE (IP Address, Port, User Name, and Password). Once the required information is entered and OK is clicked, the fields are validated, and then firmware download commences. • TimePictra opens a separate connection to the SSU-2000 specifically for the firmware download, and the SSU-2000 can accept only two such connections on the same port at the same time. If the message "Login to NE fail" appears shortly after the firmware download commences, the second connection likely is not available, or the NE is in the process of doing an automatic upgrade. If the "Login to NE fail" message appears, check the Event History Log. The progress of automatic upgrades is reported as events (if the target card is not the COMM module) if the NE is managed. If the events in the Event History Log do not indicate that an automatic upgrade is in progress, unmanage the target NE, which opens one connection, then return to the Firmware Download dialog box and click the Download button again.

End of Procedure

SSU-2000 Alarm Messages

Table FN below lists the alarms in each module by alarm number, with corresponding alarm description, default alarm level, status messages, and corrective action.

Notes:

1. With the exception of loss of power alarms (on main chassis and expansion unit) all alarms are module alarms.
2. Since a "no fault" alarm requires no action, the "Description/Corrective Action" category applies only to fault messages requiring user intervention.

Table FN. Module Alarm Messages

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
			Clock Module Alarms	
0	Status of module-to-module communication	Minor	• Communication Ok • Communication Bad	Unable to communicate with other modules. Re-seat modules.
1	Input reference available status	Minor	• Ok • Invalid	Input reference is not available Perform the following: • Check the Input reference settings • Check the Input port's status • Check that the phase value is valid • Ensure that the Input port priority is set • Verify that the PQL value is equal to or greater than the clock PQL value When the Input reference is recovered, the alarm is cleared
2	Frequency mode degradation	Minor	• Ok • Holdover	Invalid reference input will cause holdover. Verify input setup.
3	Frequency control parameters within specification	Major	• Ok • Out of Range	The reference input frequency is over the clock pull-in range.
4	Output frequency status within specification	Minor	• Ok • Degraded	Output exceeded pull-in range of oscillator. Select new input reference.

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Table FN. Module Alarm Messages (cont'd)

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
5	Clock module usable as the output reference	Minor	• Ok • Invalid	Clock mode has warmed up.
6	Status of the numerically controlled oscillator phase lock loop	Minor	• Ok • Not Locked	Alarm will clear within one minute after module is installed. If alarm persists, re-seat modules.
7	Status of the local oscillator phase lock loop	Minor	• Ok • Not Locked	Alarm will clear within one minute after module is installed. If alarm persists, re-seat module.
8	Status of the rubidium's internal phase lock loop (ST2E clock only)	Minor	• Ok • Not Locked	Only available with Stratum 2E Rubidium module. If alarm persists, re-seat module.
9	Status of the hardware configuration	Minor	• Ok • Failed	Call Symmetricom Customer Service. Return to factory.
Communications Module Alarms				
0	Module-to-module communication	Minor	• Ok • Bad	Unable to communicate with other modules. Re-seat modules.
1	Indication of output controller mastership	Minor	• Ok • Bad	Identifies master output controller. No action necessary.
2	Status of Power A	Minor	• Ok • Lost	• Verify that the fuse for Power A is properly installed and not OPEN. • Verify that Power Bus A is providing –48 vDC to the unit. If no power is connected to the Power A input and there is no plan to connect power, enter the command **`AL 10-1 IG`** at the prompt.
3	Status of Power B	Minor	• Ok • Lost	• Verify that the fuse for Power B is properly installed and not OPEN. • Verify that Power Bus B is providing –48 vDC to the unit. If no power is connected to the Power B input and there is no plan to connect power, enter the command **`AL 10-1 IG`** at the prompt.

Table FN. Module Alarm Messages (cont'd)

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
4	Status of module's serial peripheral interface hardware (SPI watchdog timeout)	Minor	• Ok • Timeout	Unable to communicate with other modules. Re-seat module.
DS1/E1 Input Module Alarms				
0	Loss of signal fault status	Minor	• Ok • Active	Verify signal is connected. May be extinguished by disabling port.
1	Alarm indication signal fault status	Minor	• Ok • Active	Verify input signal is good. Port can be disabled.
2	Out of frame signal fault status	Minor	• Ok • Active	Change frame type: • DS1-ESF or D4 • E1-CAS or CCS
3	Bipolar violation signal fault status	Minor	• Ok • Active	Verify port ZS is on. Verify signal is good.
4	Cyclic redundancy code error fault status	Minor	• Ok • Active	Verify port CRC is off. Verify signal is good.
5	Maximum time interval error fault status limit 1	Minor	• Ok • Exceeded	MTIE limit 1 has been exceeded.
6	Maximum time interval error fault status limit 2	Minor	• Ok • Exceeded	MTIE limit 2 has been exceeded.
7	Received PQL below provisioned PQL status	Minor	• Ok • Below Prov	Received SSM (PQL) is below provisioned PQL.
8	No SSM status	Minor	• Ok • Lost	Set port SSM to off to clear.
9	Module boot problem	Minor	• Ok • Failed	Re-seat module.
10	Clock PLL not locked	Minor	• Ok • Not Locked	Re-seat module.

Table FN. Module Alarm Messages (cont'd)

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
11	Input PLL not locked	Minor	• Ok • Not Locked	Verify input frequency setting. Re-seat module.
12	Phase measurement hardware fault	Minor	• Ok • Bad	Re-seat module.
13	Frequency measurement range exceeded	Minor	• Ok • Exceeded	Input frequency is greater than threshold. Monitor frequency and if persistent, check source.
14	Hardware configuration fault	Major	• Ok • Failed	Call Symmetricom Customer Service. Return to factory.
GPS Input Module Alarms				
0	Hardware configuration fault	Major	• Ok • Failed	Call Symmetricom Customer Service Return to factory.
1	GPS Engine tracking status	Minor	• Ok • Not Tracking	No visible satellites seen at startup.
2	Antenna connection status	Minor	• Ok • Not Connected	Verify that: • The antenna is connected • The cable and connectors are not damaged • The antenna placement is correct
3	Antenna condition fault	Minor	• Ok • Shorted	Ring out the cable to ensure that the center conductor is not shorted to the sleeve, then verify that: • The antenna cable is connected properly • The cable and connectors are not damaged
4	GPS Engine hardware fault	Minor	• Ok • Bad	Reseat module. If problem persists, call Symmetricom Customer Service.
5	Engine system fault	Minor	• Ok • Bad	If alarm doesn't clear after 30 minutes, call Symmetricom Customer Service.
6	Position unknown fault	Minor	• Ok • Unknown	If alarm doesn't clear after 1 hour, call Symmetricom Customer Service.

Table FN. Module Alarm Messages (cont'd)

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
7	Clock PLL status fault	Minor	• Ok • Not Locked	Reseat module. Ensure that the GPS priority level is set to 1. If problem persists, call Symmetricom Customer Service.
8	Manufacturing item number fault	Minor	• Ok • Unknown	Call Symmetricom Customer Service. Return to factory.
9	System software fault	Minor	• Ok • Failed	Reseat module. If problem persists, call Symmetricom Customer Service.
10	Phase hardware fault	Minor	• Ok • Bad	Reseat module. If problem persists, call Symmetricom Customer Service.
			DS1/E1 Output Module	
0	Redundant module status	Major	• Ok • Failed	Output alignment problem. Disable module, then re-enable.
1	Mismatched DS1/E1 modules in redundant configuration	Major	• Ok • Invalid	A redundant pair has one DSI module and one E1 module. Replace module.
2	Loss of clock source A	Major	• Ok • Lost	Clock module in slot A1 is in warm-up mode or has other problems.
3	Loss of clock source B	Major	• Ok • Lost	Clock module in slot A12 is in warm-up mode or has other problems.
4	Loss of clock source C	Major	• Ok • Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
5	Clock below minimum clock level	Major	• Ok • Below	Clock A or B is below output module setting.
6	Clock not selected for output	Major	• Selected • Not Selected	No clocks, no output.
7	Output port fault (displayed as hex value)	Major	• Ok • Active	Indicates which output port is in fault (typically shorted). Remove short and re-enable port.
8	VCXO status	Major	• Ok • Lost	VCXO problems, re-seat or replace module.

Table FN. Module Alarm Messages (cont'd)

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
9	Output PLL status	Major	• Ok • Lost	No clocks or VCXO. Re-seat and check clocks.
10	Configuration status	Major	• Ok • Failed	Redundant configuration mismatch. Re-seat or replace module.
11	Hardware configuration fault	Major	• Ok • Failed	Call Symmetricom Customer Service. Return to factory.
12	Loss of clock source D	Major	• Ok • Lost	Only in SDU. Loss of backup clock. Check cable.
Composite Clock Output Module				
0	Redundant module status	Major	• Ok • Failed	Output alignment problem. Disable module, then re-enable.
1	Mismatched DS1/E1 modules in redundant configuration	Major	• Ok • Invalid	A redundant pair has one DSI module and one E1 module. Replace module.
2	Loss of clock source A	Major	• Ok • Lost	Clock module in slot A1 is in warm-up mode or has other problems.
3	Loss of clock source B	Major	• Ok • Lost	Clock module in slot A12 is in warm-up mode or has other problems.
4	Loss of clock source C	Major	• Ok • Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
5	Loss of clock source D	Major	• Ok • Lost	Only in SDU. Loss of backup clock. Check cable.
6	Clock below minimum clock level	Major	• Ok • Below	Clock A or B is below output module setting.
7	Clock not selected for output	Major	• Selected • Not Selected	No clocks, no output.
8	VCXO status	Major	• Ok • Lost	VCXO problems, re-seat or replace module.

Table FN. Module Alarm Messages (cont'd)

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
9	Output PLL status	Major	• Ok • Lost	No clocks or VCXO. Re-seat and check clocks.
10	Configuration status	Major	• Ok • Failed	Redundant configuration mismatch. Re-seat or replace module.
11	Internal port fault, Active 4000	Major	• Ok • Active	Driver chip indicated a port fault on port 2 (4000 Hex).
12	External port fault, Active A000	Major	• Ok • Active	Indication of external port fault on ports 2 and 4 (A000 Hex).
13	Hardware configuration fault	Major	• Ok • Failed	Call Symmetricom Customer Service Return to factory.
2048 kHz Output Module				
0	Redundant module status	Major	• Ok • Failed	Output alignment problem. Disable module, then re-enable.
1	Mismatched DS1/ E1 modules in redundant configuration	Major	• Ok • Invalid	A redundant pair has one DSI module and one E1 module. Replace module.
2	Loss of clock source A	Major	• Ok • Lost	Clock module in slot A1 is in warm-up mode or has other problems.
3	Loss of clock source B	Major	• Ok • Lost	Clock module in slot A12 is in warm-up mode or has other problems.
4	Loss of clock source C	Major	• Ok • Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
5	Loss of clock source D	Major	• Ok • Lost	Only in SDU. Loss of backup clock. Check cable.
6	Clock below minimum clock level	Major	• Ok • Below	Clock A or B is below output module setting.
7	Clock not selected for output	Major	• Selected • Not Selected	No clocks, no output.

Table FN. Module Alarm Messages (cont'd)

Alarm Number	Alarm Description	Default Alarm Level	Status Messages	Description/Corrective Action
8	VCXO status	Major	• Ok • Lost	VCXO problems, re-seat or replace module.
9	Output PLL status	Major	• Ok • Lost	No clocks or VCXO. Re-seat and check clocks.
10	Configuration status	Major	• Ok • Failed	Redundant configuration mismatch. Re-seat or replace module.
11	Internal port fault, Active 4000	Major	• Ok • Active	Driver chip indicated a port fault on port 2 (4000 Hex).
13	Hardware configuration fault	Major	• Ok • Failed	Call Symmetricom Customer Service. Return to factory.

General Constraints and Known Issues

This chapter provides information regarding general constraints and known issues with TimePictra 3.2.

App. J

General Constraints for TimePictra 3.2

Limits for specified fields and capabilities

Number of managed Network Elements, 1500

Number of simultaneous web user sessions, 15

Number of simultaneous Openview Map user sessions, 4

Number of created TimePictra users, 100

Number of Action Associations, 200

Number of Actions, 200

Number of command templates, 150

Number of configuration defaults, 500

Number of Sync Trails that may exist, 5000

Number of NE connections per Service Element daemon, 50

Number of User sessions per poolsize, 3

Length of domain name, 45

Number of domains, 200

Number of domains deep, 4

Length of Network Element name, 25

Length of TimePictra Username, 8

Length of passwords, 30

"USER" cannot be used as TimePictra user name.

1. “End” button on the Event History log and Activity log forms gets disabled if a query returns more than 100,000 records.

2. In order for graphics plots and printing to function, the DISPLAY environment variable must point to a valid running X-server, and the X-server must allow a connection in order for Oracle to get critical graphics information. This environment variable is set by default to be the HP-UX machine hosting all of the other TimePictra services, but can be changed by editing the DISPLAY variable in

the /opt/osmf/config/env/osmf-http.env environment file. Also, permission must be granted for Oracle processes to connect to the X-server. This can be done anytime during an X-session by typing "xhost +`hostname`" on the TimePictra workstation as the user root.

3. *(Addressed in TimePictra 3.1)* For some NE types' Inventory Information, such as serial number and firmware revision number, is not uploaded automatically.

4. On the "Sub-Network Management" form, if a user deletes the domain selected at the time of bringing up the form, then all subsequent new domain creation operation will fail. This is because the form tries to create a new domain under a domain that has already been deleted.

5. If a user with some special character is created for a NE, the parsing routine for that NE "User Administration" encounters problems. The form will show blank in the existing list of users for that NE.

6. If an NE Ghost symbol is deleted from a domain and the source NE is also in the same domain and is managed, then the ghost symbol is deleted and the source NE is hidden. The Source NE will be seen again when a new session is started. (A)

7. No warning is given to a user when trying to manage an NE of a specific type when selecting the wrong NE-Type in the manage form. The manage operation will fail, but the error may not lead the user to understand why the manage operation failed.

8. A CTAG of more than 6 digits will generate a CP error. "CP: Send ORA-01401: inserver value too large for the column."

9. The user must use uppercase letters CTAG in a passthru operation for DCDs and TS3xxx. If lowercase letters are used, there will be a 30 second timeout for operation. DCD converts all CTAGs to uppercase and TimePictra does case-sensitive CTAG matching.

10. Changing managed NE attributes via Passthru or direct TL1 connection can cause the Database to contain inconsistent information for NE. A re-manage operation will synchronize NE information with Database information.

11. When a higher number of Service Elements are running, over 5, some time must be given between osmfstop and osmfstart executions. The SEs need time to shut down and release the network connections before trying to start up the same connections again. If the SE is not able to start up, osmfstatus will indicate a DOWN status and the NEs associated with that SE will not be accessible to TimePictra. If this condition occurs, the TimePictra administrator must perform an osmfstop, and wait for all network connections to be terminated. Admin may use the netstat -an command to see if any port between 5000 and 5049 is in use. If one of these ports is in use, an osmfse process must be running and needs to be killed before starting TimePictra daemons.

12. When performing osmfstop, the SEMD daemon may stay running for up to 5 minutes depending on database operations. A second osmfstop will immediately shutdown the SEMD and the user may proceed. In most situations, the SEMD will shutdown within 1 minute.

13. Function Keys F1-F12 may be defined by Oracle application or other applications which may produce undesired action for TimePictra forms. These function keys should not be pressed while using the TimePictra application forms directly.

14. When closing TimePictra Web session, all browser windows must be closed before starting another TimePictra Web session. If any remaining windows are left running the new session may experience connection problems.

15. TimePictra Web sessions have been tested with Oracle Jinitiator 1.3.1.6. Other versions of this plugin may have issues with connections, functionality, graphics and/or performance.

16. Usability issue with auto action- associations- columns which support a "*" entry. When unselecting all entries in a column and the apply button is pressed, a "*" will be placed in the column. A saved column may not be left null; by default, this is a database requirement and will remain as such. If an association is not to be used and is to remain in the list, a dummy CLLI reference may be used in place of "*" as a placeholder for the association. The dummy NE must be created first before its name will show in the list. Since the dummy NE will never receive events, the association will never trigger.

17. Trace and log files in /var/opt/osmf/share/log should not be removed or permissions changed while TP is running. The files are created at startup time and if removed, can cause internal processing issues since the file will be missing. Some log and trace files use two alternating files and limit size to 1MB. Other log files will continue to grow and may need attention or truncations after some time. Files may be truncated by using the following method: " >filename ". The permissions and ownership of the files should not be changed. The script, /opt/osmf/DB/admin/clean_logs.ks may also be used to truncate all trace and log files. If TimePictra is shut down, it is ok to remove the log and trace files. They will be recreated.

18. If TimePictra daemons are shut down, TimePictra Openview users' sessions will lose connections and shut down automatically.

Known Issues for TimePictra

1. A Manage operation might fail for NE if simultaneously a user from another session tries to work on it.

2. On HP55400, an alarm gets escalated to higher severity if it has been on the box for more than 24 hours. Box still reports its withhold severity but shows differently on the IMC. Thus, when this situation exists on the box, the NE status will be different from what is reported by TimePictra.

3. A TS3100 Configuration Modify form does not allow a user to enable or disable OPT cards. This can be done using the passthru command. Thus, if Output cards are disabled and user tries to change any parameter for that Output card, user would get an Invalid Sequence error.

4. *(Fixed in TimePictra 3.1)* A re-manage operation would clear all user entered inputs, such as inventory and remarks, for the NE.

5. SYS LED for TS3xxx on status panel is not implemented to check if the PRC was lost for more than 24 hours.

6. When displaying fault analysis or Performance data with less than four data points on X axis, the X axis may plot repetitive numbers even though the graph shows the correct information.

7. When using firmware download form, the form requires the download file to be in /var/opt/osmf/share/log directory.

8. *(Fixed in TimePictra 3.1)* DCD status forms does not include any indication about protection status.

9. E1 performance mask values are not available for reference in performance plots.

10. TS3100/3600 re-timer option is not displayed on status panel. Bypass attribute values are shown on Configuration form and allowed in manage operation.

11. *(Fixed in TimePictra 3.1)* When TS3100 with ESCIU option is installed, ByPass configuration is visible in modify configuration form under NE tab, but is not editable via form. Passthru may be used to change this value and then NE must be unmanaged and managed again.

12. When viewing status panel for TimeHub 5500, there are conditions where fast track and tracking led will show differently than actual NE. The standby clock may show the wrong status. This is due to the way the TL1 is sent from the NE and will be fixed in the firmware. The NE does show the correct status at all times, but due to the TL1 response TimePictra is not able to determine the correct status during some conditions. When the standby clock track mode is different than the active clock, this condition may be observed.

13. DCD50402 SSMSA8 value does not show in configuration form until set via selection button. If value is set, an applied value will then be visible from that point on. Even though value does not show initially, the NE does have the value set.

70. *(Fixed in TimePictra 3.2)* TP documentation refers to DCD 5.04.04, but this version was not released when 3.0 was released.

107. *(Fixed in TimePictra 3.2)* Alarm Viewer auto-refresh is set to off by default. Have it set to 20 seconds by default

110. *(Fixed in TimePictra 3.2)* When selecting OUTE on the Outputs tab in the 55400 Configuration View and Configuration Modify forms, only one model number is displayed (Model no: 1=HP55482, Model no: 2=).

111. *(Fixed in TimePictra 3.2)* Audit operation flags differences which are not of concern to the customer. Configuration audit displays a mismatch of performance threshold setting due to decimal points being different. Shows values of “1” as being an audit difference compared to “1.00”. TimePictra should not show this as an audit flag and take care of the precision calculation.

112. *(Fixed in TimePictra 3.2)* Performance Table size increase to handle larger amount of data.

113. *(Fixed in TimePictra 3.2)* When a non-standard Output card is in slot 1 of DCD 50402, other cards might not be represented correctly in the Configuration View and Configuration Modify forms.

114. *(Fixed in TimePictra 3.2)* Setting Alarm Viewer filter parameters over 255 characters would cause an Oracle error. Have limited this field to remedy this issue.

116. *(Fixed in TimePictra 3.2)* Database agent daemon hard-coded path reference by SHLIB_PATH. Should point to /opt/osmf/lib. This would cause the database daemon to not start which is needed by SNMP. *(SNMP option only)*

117. *(Fixed in TimePictra 3.2)* Activity Log viewable by “User” level security. Access removed.

118. *(Fixed in TimePictra 3.2)* Maximum length FDN and Refresh causes crash on the Web session.

119. *(Fixed in TimePictra 3.2)* User which has “Root” domain as their filter do not see NEs in other domains.

120. *(Fixed in TimePictra 3.2)* Alarm Viewer filter for 55409 NE types does not have event types associated.