TimePictra Release 3.6.1

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Contents

How to Use This Guide

Chapter 1   Introduction and General Information

Chapter 2   Starting and Stopping a User Session

Chapter 3   Network Topology - Synchronization Maps

Chapter 4   Network Topology – The Launch Pad

Chapter 5   Network Topology Creation – over Openview Synchronization Map and Launch Pad

Chapter 6   Fault Management

Chapter 7   Performance Management

Chapter 8   Inventory Management

Chapter 9   Security Management

Chapter 10   Configuration Management

Chapter 11   Default Management

Chapter 12   Auto Action

Chapter 13   Command Pass Through

Chapter 14   Miscellaneous Functions

Appendix A   NE Information - DCD Version 5.01.05

Appendix B   NE Information - DCD Firmware Version 5.04.02/5.05.02/5.05.04

Appendix C   NE Information - PRR10

Appendix D   NE Information - TimeHub 5500

Appendix E   NE Information - 55400/55409

Appendix F   NE Information - TimeSource 3000 and Time-Source 3500

Appendix G   NE Information – TimeSource 3100 and Time-Source 3600

Appendix H   NE Information - TSG 3800 Versions D and E

Appendix I   NE Information - SSU-2000

Appendix J   NE Information - TimeProvider 1000 and TimeProvider 1100

Appendix K   NE Information - 55300A GPS Telecom Primary Reference Source

Appendix L   General Constraints, Issues, and Enhancements

Figures

Tables

How to Use This Guide

This preface describes the format, layout, and purpose of this guide.

In This Preface

- Purpose of This Guide
- Who Should Read This Guide
- Structure of This Guide
- Conventions Used in This Guide
- Warnings, Cautions, Recommendations, and Notes
- Related Documents and Information
- Where to Find Answers to Product and Document Questions
- What's New In This Guide

Purpose of This Guide

The *TimePictra 3.6 User's Guide* describes how to start and stop a TimePictra software user session, and how to use the various functions and features of the software. A series of appendices provide specific information related to the various network elements that are supported by TimePictra.

Who Should Read This Guide

Chapter 1, Introduction and General Information, is written for non-technical audiences who need general information about the product's features. Chapter 2, Starting and Stopping a User Session explains how to start and stop web-based and X-Windows-based user sessions. Chapter 3, Network Topology - Synchronization Maps through Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad describes how to set up and manage a web or X-Windows-based network topology representation within TimePictra. Chapter 6, Fault Management through Chapter 14, Miscellaneous Functions describes how to use the various functions and features of TimePictra to manage network elements. Appendix A, NE Information - DCD Version 5.01.05 through Appendix K, NE Information - 55300A GPS Telecom Primary Reference Source provides specific information related to the various network elements that are supported by TimePictra. Appendix L, General Constraints, Issues, and Enhancements lists specific limits and known issues for version 3.6 of the TimePictra software.

This *User's Guide* is designed for the following categories of users:

- **Synchronization Network Engineers** – While Chapter 1 contains some introductory information that is written for non-technical audiences, the other chapters and appendices in the manual contain detailed information and instructions that are intended to be performed by *qualified personnel only*.

Structure of This Guide

This guide contains the following sections and appendixes:

Chapter, Title	Description
Chapter 1, Introduction and General Information	Provides an overview of the product, describes the major hardware and software features and options, and other general information regarding the software.
Chapter 2, Starting and Stopping a User Session	Explains how to start and stop a web-based or X-Windows-based user session.

Chapter, Title	Description
Chapter 3, Network Topology - Synchronization Maps	Provides a description of TimePictra/Openview synchronization maps, and explains how to create network topology sub-maps and add network element symbols to the maps in order to create a representation of the network topology in a X-Windows user session.
Chapter 4, Network Topology – The Launch Pad	Provides a description of the TimePictra Launch Pad, which is a representation of the network topology in a web user session.
Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad	Explains how to create network topology sub-networks and add network element symbols to the sub-networks in order to create a representation of the network topology in a X-Windows or web-based user session.
Chapter 6, Fault Management	Explains how to use the TimePictra software's network element status, fault analysis, alarm management, and event management features.
Chapter 7, Performance Management	Explains how to use the TimePictra software's performance monitoring features, and how to generate performance reports.
Chapter 8, Inventory Management	Explains how to manage the TimePictra software's inventory database, and how to generate inventory reports.
Chapter 9, Security Management	Explains how to use the TimePictra software's TimePictra user administration, NE user administration, and management domain features.
Chapter 10, Configuration Management	Explains how to use the TimePictra software to view or modify the configuration of NEs, and manage sync trails on Openview synchronization maps. A general explanation of NE firmware upgrading using TimePictra is also provided.
Chapter 11, Default Management	Explains how to use the TimePictra software to manage NE configuration defaults and command templates, and perform configuration audits on NEs.
Chapter 12, Auto Action	Explains how to use the TimePictra software's auto-action feature, which is used to associate internal and external processes such as scripts, e-mail, and command templates with internal events and conditions within the TimePictra database.
Chapter 13, Command Pass Through	Explains how to use the TimePictra software's TL/1 command pass-through feature.
Chapter 14, Miscellaneous Functions	Explains how to use the TimePictra software's activity log and transaction log viewers, and how to use the show user, force unlock NE, and forced alarm synchronization features.
Appendix A, NE Information - DCD Version 5.01.05	Provides status and configuration setting information that is specific to the DCD version 5.01.05 NE, and explains how to add or delete equipment and ports to/from the NE's resident database.

Chapter, Title	Description
Appendix B, NE Information - DCD Firmware Version 5.04.02/5.05.02/5.05.04	Provides status and configuration setting information that is specific to DCD version 5.04.02, 5.05.02, and 5.05.04 NEs, and explains how to add or delete equipment and ports to/from the resident database of the NEs.
Appendix C, NE Information - PRR10	Provides status and configuration setting information that is specific to the PRR10 NE.
Appendix D, NE Information - TimeHub 5500	Provides status and configuration setting information that is specific to the TimeHub 5500 NE, and explains how to download firmware upgrades to the NE.
Appendix E, NE Information - 55400/55409	Provides status and configuration setting information that is specific to 55400 and 55409 NEs, and explains how to download firmware upgrades to the NEs.
Appendix F, NE Information - TimeSource 3000 and TimeSource 3500	Provides status and configuration setting information that is specific to TimeSource 3000 and 3500 NEs.
Appendix G, NE Information – TimeSource 3100 and TimeSource 3600	Provides status and configuration setting information that is specific to TimeSource 3100 and 3600 NEs.
Appendix H, NE Information - TSG 3800 Versions D and E	Provides status and configuration setting information that is specific to TSG 3800 version D and E NEs.
Appendix I, NE Information - SSU-2000	Provides status and configuration setting information that is specific to the SSU-2000 NE, and explains how to download firmware upgrades to the NE.
Appendix J, NE Information - TimeProvider 1000 and TimeProvider 1100	Provides status and configuration setting information that is specific to TimeProvider 1000 and 1100 NEs.
Appendix K, NE Information - 55300A GPS Telecom Primary Reference Source	Provides status and configuration setting information that is specific to the 55300A GPS Telecom PRS NE.
Appendix L, General Constraints, Issues, and Enhancements	Lists specific limits and known issues of the TimePictra software.
Index	Provides references to individual topics within this guide.

Conventions Used in This Guide

This guide uses the following conventions:

- **Acronyms and Abbreviations** – Terms are spelled out the first time they appear in text. Thereafter, only the acronym or abbreviation is used.

- **Revision Control** – The title page lists the printing date and versions of the product this guide describes.

- **Typographical Conventions** – This guide uses the typographical conventions described in the table below.

When text appears this way...	... it means:
TimePictra 3.6 User's Guide	The title of a document.
SSU **CRITICAL**	An operating mode, alarm state, status, or chassis label.
Select **File**, **Open**...	Click the Open option on the File menu.
Press **Enter** Press **;**	A named keyboard key. The key name is shown as it appears on the keyboard. An explanation of the key's acronym or function immediately follows the first reference to the key, if required.
`Username:`	Text in a source file or a system prompt or other text that appears on a screen.
`PING` `swinstall`	A command you enter at a system prompt or text you enter in response to a program prompt. You must enter commands for case-sensitive operating systems exactly as shown.
A *fault analysis* operation	A word or term being emphasized.
Symmetricom ***does not*** recommend...	A word or term given special emphasis.

Warnings, Cautions, Recommendations, and Notes

Warnings, Cautions, Recommendations, and Notes attract attention to essential or critical information in this guide. The types of information included in each are explained in the following examples.

Warning: To avoid serious personal injury or death, *do not* disregard warnings. All warnings use this symbol. Warnings are installation, operation, or maintenance procedures, practices, or statements, that if not strictly observed, may result in serious personal injury or even death.

Caution: To avoid personal injury, *do not* disregard cautions. All cautions use this symbol. Cautions are installation, operation, or maintenance procedures, practices, conditions, or statements, that if not strictly observed, may result in damage to, or destruction of, the equipment. Cautions are also used to indicate a long-term health hazard.

ESD Caution: To avoid personal injury and electrostatic discharge (ESD) damage to equipment, *do not* disregard ESD cautions. All ESD cautions use this symbol. ESD cautions are installation, operation, or maintenance procedures, practices, conditions, or statements that if not strictly observed, may result in possible personal injury, electrostatic discharge damage to, or destruction of, static-sensitive components of the equipment.

Electrical Shock Caution: To avoid electrical shock and possible personal injury, do not disregard electrical shock cautions. All electrical shock cautions use this symbol. Electrical shock cautions are practices, procedures, or statements, that if not strictly observed, may result in possible personal injury, electrical shock damage to, or destruction of components of the equipment.

Recommendation: All recommendations use this symbol. Recommendations indicate manufacturer-tested methods or known functionality. Recommendations contain installation, operation, or maintenance procedures, practices, conditions, or statements, that provide important information for optimum performance results.

Note: All notes use this symbol. Notes contain installation, operation, or maintenance procedures, practices, conditions, or statements, that alert you to important information, which may make your task easier or increase your understanding.

Related Documents and Information

Other helpful documents and software tools are listed below. See your Symmetricom representative or sales office for a complete list of available documentation.

■ TimePictra Performance Analyzer Option User's Guide

> **Note:** Symmetricom offers training courses designed to enhance your knowledge of TimePictra. Contact your local representative or sales office for a complete list of courses and outlines.

Where to Find Answers to Product and Document Questions

For additional information about the products described in this guide, please contact your Symmetricom representative or your local sales office. You can also contact us on the web at www.symmetricom.com.

What's New In This Guide

The following new features and enhancements are included in version 3.6.1 of the TimePictra software:

■ Support is added for the following TimeProvider 3.0 functions:
  – Embedded NTP server
  – Integrated TPIU/IMC card
  – RS 422
  – CAS/CCS framing (both inputs and outputs)
  – SSM bit output programmability
■ Support is added for provisioninig the following SSU-2000 modules:
  – Japanese Composite Clock Input Module
  – Japanese Composite Clock Output Module
  – Japanese Sinewave Input Module
  – Japanese Sinewave Output Module
■ Support is added for TimeSource 1.06.09, 1.06.10 and 1.06.11
■ Corrected issues in TimeSource status panel LED
■ Changed expansion shelves naming in SSU2000
■ Corrected issue caused when trying to display DCD 5.05.02 expansion shelves

- Added navigation arrows in DCD NE status

- Corrected issue for SSU-2000 NE Status auto-refresh functionality

- Enhancement: Separated SSU2000 GPS options from other input cards in Configuration form

- Corrected issue caused when managing five full SSU-2000 shelves

- In TimeProvider configuration form, show date and time are blank but the setting feature is still available

Chapter 1 Introduction and General Information

This chapter provides information of general interest to the user.

In This Chapter

- In This Guide
- Naming Conventions
- Software Description
- Features and Enhancements – Version 3.6.1
- Supported Network Element Firmware
- Related Documentation
- User Classes
- Management Domains

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 1-1.

Table 1-1. 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
HP-UX 11: Minimal Technical Operating Environment	HP-UX, 11, MTOE, Unix

Software Description

TimePictra provides an easy-to-use graphical user interface (GUI) for the management of NEs that make up a 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 other network management functions on them.

TimePictra Features

The following sections explain the feature set of TimePictra. 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 only)
  - TimeSource 3000/3100/3500/3600
  - DCD
  - TSG 3800
  - PRR10
  - SSU-2000 (fault management only)

- Ability to manage synchronization networks consisting of up to 1500 Network Elements (NEs).

- Ability to communicate with NEs over the network using the TCP/IP and TP4 communications protocols.

- Adherence to TNM standards

- Integration with industry standards: Oracle, HP Openview, HP-UX, Windows.

- 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 Chapter 2, 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.

Features and Enhancements – **Version 3.3**

In addition to the features listed above, the following features and enhancements are included in version 3.3 of the TimePictra software:

■ Full management of the TimeProvider network element type.

■ Hardware re-alignment of the NetSync 55400, TimeHub, and TimeProvider network element types.

■ TP4 protocol support for the NetSync 55400 network element type.

■ Fault management of DCD NEs equipped with the MIS-23 card.

■ Enhanced heartbeat algorithm.

Features and Enhancements – **Version 3.4**

In addition to the features listed above, the following features and enhancements are included in version 3.4 of the TimePictra software:

■ Modification of the NE Status, View Configuration, and Modify Configuration dialog boxes to provide support for the RS-422 Output Module, E1/2048 Output Module, and LRU Module in the SSU-2000 NE.

■ Full TimePictra support for the Net Sync 55300A GPS Telecom PRS NE.

■ The following security enhancements:

– *Password Policy Enforcement*, which enforces a format policy for Web user passwords, and allows the creator of the Web user to set a password expiration time.

  – *Functionality Access Matrix*, which allows the creator of a given user to disable access to select TimePictra features and functions that are normally included in the user's default functionality access.

  – *Software licensing*, which determines the features and capabilities of a given installation of the TimePictra software, and protects against illicit installations of the TimePictra software.

- Added support for the following versions of NE firmware:

  – Net Sync 55300A – 3704D

  – SSU-2000 – H.01

  – TSG 3800 – E.16

  – TimeHub 5500 – 4328E

Features and Enhancements – **Version 3.5**

In addition to the features listed in the above sections, the following features and enhancements are included in version 3.5 of the TimePictra software:

- With an all new "Alarm Mapping" feature, the Network Operations Center (NOC) can now change incoming severities of alarms to the severity they would like to see in their monitoring screens. All other modules within TimePictra would also treat an alarm with the new mapped severity. A high level of granularity is supported while creating the alarm mappings, which means that alarm mappings can be broad or made very specific.

- TimePictra's 'PM Option' until now supported scheduled collection of all performance measurement types, except for raw phase data, because raw phase data could be a large file size. "Raw Phase data scheduled collection" is now a new feature supported for SSU2000 and TSG3800. Large amounts of raw phase data can be collected for multiple NEs at the same time.

- Storing "User Preferences" for subsequent login is another new feature in TimePictra. The auto-refresh intervals in the Alarm-Viewer GUI and the main Launch-Pad GUI can now be stored for an individual user. Also the way the initial filter works in "Alarm Viewer" and "Event History Log" can also be stored as a preference.

- "Auto-Set Date on NE, as an option in manage operation" is now supported for SSU2000, TimeHub, 55400, DCD and TimeSource. If supported by the NE, this feature allows users set the time on the NE to the local TimePictra server time.

- The new "Overall System Report" feature allows you to create a full report on Network Elements managed, Users, and Domains.

- Many issues in previous releases have also been fixed, along with various enhancements to status panels (especially DCD) and various graphing improvements in performance graphs displays. The "Remarks" field in the "NE Details" GUI can now hold up to 500 characters, instead of just 100.

- Added support for the following versions of NE firmware:

- 55400 version 3724

- TimeSource 1.06.06 and 1.06.07

- TimeProvider 1.02.12 (fault only) and PM plots of TDEV/MTIE

- DCD EA-20 Card

- SSU2000 E1-LRU Card

- 55300 version 3807

  Refer to Supported Network Element Firmware, on page 44 for a listing of all NE firmware versions that are supported.

■ Many other enhancements and issues have been fixed in version 3.5 of the TimePictra software. Refer to Appendix L, General Constraints, Issues, and Enhancements for more information.

Features and Enhancements – **Version 3.6**

In addition to the features listed in the above sections, the following features and enhancements are included in version 3.6 of the TimePictra software:

■ Support is added for the TimeProvider NE: full management of release 2.1, including GPS performance monitoring, and Japanese-specification signals; and full management of release 2.2, including the Retimer module and port name. Firmware download to the TimeProvider is also supported.

■ Support is added for the TimeSource 3100 and 3600 retimer on the Status panel.

■ Support is added for the 55400 NE: SSM, BPV, and CRC values appear on the Status panel.

■ Support is added for the SSU-2000 NE: new firmware for the E1/2048 kHz Output module is supported.

■ Added capability to update all port_names for TimeProvider and SSU-2000 (previous version allowed only port_remarks) using an Excel-readable tab-separated-value (TSV) file.

■ The HE Archive outputs Unix files that now have all the fields, not just an important few.

■ Database tuning for both TP and Replication. The UNDO tablespace replaces RBS tablespace to tune some database initialization parameters, which improves the database performance.

■ Implement security features. TimePictra now supports reuse max, change password on initial login, failed login attempts, password lock time, disable user being inactive, concurrent session, password expiration, and password grace time.

■ When the Launch Pad is started, a window appears with the number of failed login attempts and the last login time. The Transaction log includes successful and failed login and logouts, and shows the current logged-in users.

- The Performance Monitor now includes a logarithmic scale, NA data is plotted as a gap in graphics, and positive and negative values are included on bar graphs.

- The Activity log retains only the most-recent 10 heartbeat commands and responses; this reduces the chance that the raw_log table fills too rapidly when many NEs are managed.

- Many other enhancements and issues have been fixed in version 3.6 of the TimePictra software. Refer to Appendix L, General Constraints, Issues, and Enhancements.

Features and Enhancements – Version 3.6.1

In addition to the features listed in the above sections, the following features and enhancements are included in version 3.6.1 of the TimePictra software:

- Support is added for the following TimeProvider 3.0 functions:
  - Embedded NTP server
  - Integrated TPIU/IMC card
  - RS 422
  - CAS/CCS framing (both inputs and outputs)
  - SSM bit output programmability

- Support is added for provisioninig the following SSU-2000 modules:
  - Japanese Composite Clock Input Module
  - Japanese Composite Clock Output Module
  - Japanese Sinewave Input Module
  - Japanese Sinewave Output Module

- Support is added for TimeSource 1.06.09, 1.06.10 and 1.06.11

- Corrected issues in TimeSource status panel LED

- Changed expansion shelves naming in SSU2000

- Corrected issue caused when trying to display DCD 5.05.02 expansion shelves

- Added navigation arrows in DCD NE status

- Corrected issue for SSU-2000 NE Status auto-refresh functionality

- Enhancement: Separated SSU2000 GPS options from other input cards in Configuration form

- Corrected issue caused when managing five full SSU-2000 shelves

- In TimeProvider configuration form, show date and time are blank but the setting feature is still available

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.

Supported Network Element Firmware

Table 1-2 shows the versions of communication card firmware that are supported by the TimePictra 3.6 software for each supported NE:

Table 1-2. Supported NE Firmware Versions

NE	Supported NE Communication Card Firmware Versions
TimeProvider	IOC Fw 1.01.02 (Hw 1.0), IOC Fw 1.02.12 (Hw 2.1), IOC Fw 1.03.04 (Hw 2.2), IOC Fw 1.04.02 (Hw 3.0)
TimeHub 5500	R4209C, R4315C, R4328E
SSU-2000	D.00, H.01, J.00, L.00
Net Sync 55400/55409	R3946B, R3851D, 4119D, 3724A (NIMC cards), 3724D (ITH cards)
Net Sync 55300A	3704D, 3807
TimeSource 3500/3000 (NA)	1.06.06, 1.06.07, 1.06.10

Table 1-2. Supported NE Firmware Versions

NE	Supported NE Communication Card Firmware Versions
TimeSource 3600/3100 (Intl.)	1.06.04, 1.06.09, 1.06.11
DCD	5.01.05, 5.04.02, DCD 5.05.02, MIS-23 (fault management only)
TSG-3800	D.04, E.06, E.16
PRR10	D.00

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 1-3 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 1-3. 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, and Transaction 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, manage and unmange NEs, 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 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 Chapter 9, Security Management in this guide.

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.

In This Chapter

- Overview
- Web Client System Requirements
- Web Client Setup
- Starting and Stopping Web-Based User Sessions
- Starting and Stopping X-Windows-Based User Sessions

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 Chapter 9, Security Management.

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 Web Client Setup, on page 49 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)

- Monitor with minimum 1024 by 768 screen resolution

- DAT External Tape Drive

- 128 MB of system RAM (256 MB or more recommended)

- 30 MB of free hard disk space (50 MB or more recommended)

- Microsoft® Internet Explorer version 5.5 or higher *with the following plug-ins*:

  – Oracle JInitiator 1.3.1.22 (included with TimePictra)

  – Adobe Acrobat® Reader version 5.0 or higher

OR....

- Netscape® Navigator/Communicator version 4.7 or higher *with the following plug-ins:*

    – Oracle JInitiator 1.3.1.22 (included with TimePictra)

    – Adobe Acrobat® Reader version 5.0 or higher

Bandwidth Requirements

The following are the recommended bandwidth requirements:

- Between TimePictra and each NE: 56 kbps minimum, 128 kbps recommended, 10BaseT is ideal

- TimePictra Web-based access: 56 kbps minimum (modem access), 128 kbps recommended

- TimePictra X-windows (OpenView): 2 Mbps, 10BaseT is ideal

- between TimePictra Resiliency Servers: 10 Mbps; usage depends on the number of NEs managed, the number of events reported by NEs, and the type/number of features used by TimePictra users. 10BaseT is ideal

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

The following procedure explains how to set up a Windows Web client for TimePictra user sessions.

1. Ensure that the Web browser is installed and configured on the client platform.

    The TimePictra client session runs within either the Netscape Navigator/ Communicator or Microsoft Internet Explorer browser. Refer to Web Client System Requirements, on page 48 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 is the connection for the Oracle/TimePictra interface. The default is port 8080

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 <u>Oracle JInitiator x.x.x.x (plugin)</u> 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, on page 50, then the first time you attempt to start TimePictra 3.6, TimePictra detects that the latest version of the Jinitiator Plug-in is not installed, and automatically opens 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.

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

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.

The following procedure explains how to start a web-based user session.

> **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.

Recommendation: 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.

Note: 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 Web Client Setup, on page 49 for information on setting up the Web client to run the TimePictra user session.

3. Click the *Launch TimePictra 3.6* button that is in the TimePictra main page.

After the button is clicked, the "TimePictra LaunchPad Window," TimePictra splash screen, and then 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 in the Logon dialog box should be left blank.

2. After the Connect button is clicked, the user has been authenticated, and the system has checked that the user's password has not expired, the Launch Pad loads. The Launch Pad might not appear for some time, as it is downloaded over the network. Load time will vary with the network speed.

3. 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 reload the "TimePictra LaunchPad Window," or click the *Launch TimePictra 3.6* button again to continue.

4. If, upon clicking the Connect button in the Logon dialog box, the system determines that the Demo license has expired, a message box containing the message "`Sorry, Your TimePictra DEMO license has expired!!....`" appears. Contact Symmetricom to purchase a license.

5. If, upon clicking the Connect button in the Logon dialog box, the system determines that the user's information was tampered with in the TimePictra user database, a message box containing the message "`TimePictra Password Limit was tampered in the Database...`" appears. You must contact the security administrator to correct the problem with your user account, which might necessitate that your user account be deleted and recreated.

6. If, upon clicking the Connect button in the Logon dialog box, the system determines that the software license was tampered with, a message box containing the message "`Invalid TimePictra License File....`" appears. You must contact the security administrator to have the license file reinstated.

7. If, upon clicking the Connect button in the Logon dialog box, the system determines that the user's password has expired, a dialog box appears in which you must enter the old password and enter and confirm a new password before continuing.

Note: 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 will hang.

If the logon is successful, two windows appear: Login History and the Launch Pad. The Login History window contains information on the last login for the user, and information on any failed login attempts. If the user has not logged in before, this window does not appear, but the Password window (Figure 2-2.) appears, prompting the user to create a new password. See The Launch Pad, on page 56 for further information on the Launch Pad. View the containment hierarchy within the domains, and begin performing network management activities using the software. Table 2-1 indicates the chapters in this manual where specific management activity information can be found.
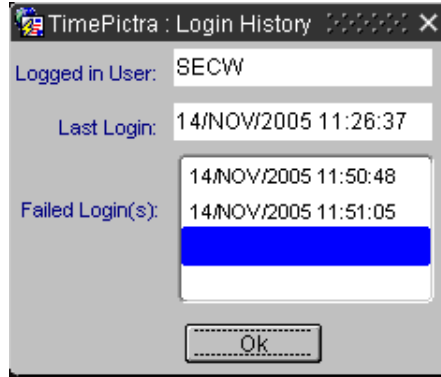
Figure 2-1.   The Login History Window

Figure 2-2.   The Password Expired Window

Table 2-1 is referenced from the above procedure.

Table 2-1. 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. Performance Utility	Chapter 7, Performance Management
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, Default 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 Creation – 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, setting user preferences	Chapter 14, Miscellaneous Functions

Stop a Web-Based User Session

Use the following procedure to stop a Web-based TimePictra user session in order to ensure that user data is preserved.

> **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.

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 2-3 and Table 2-2 briefly explain the Launch Pad, and Table 2-3 describes the action associated with each menu/icon selection in the Launch Pad.
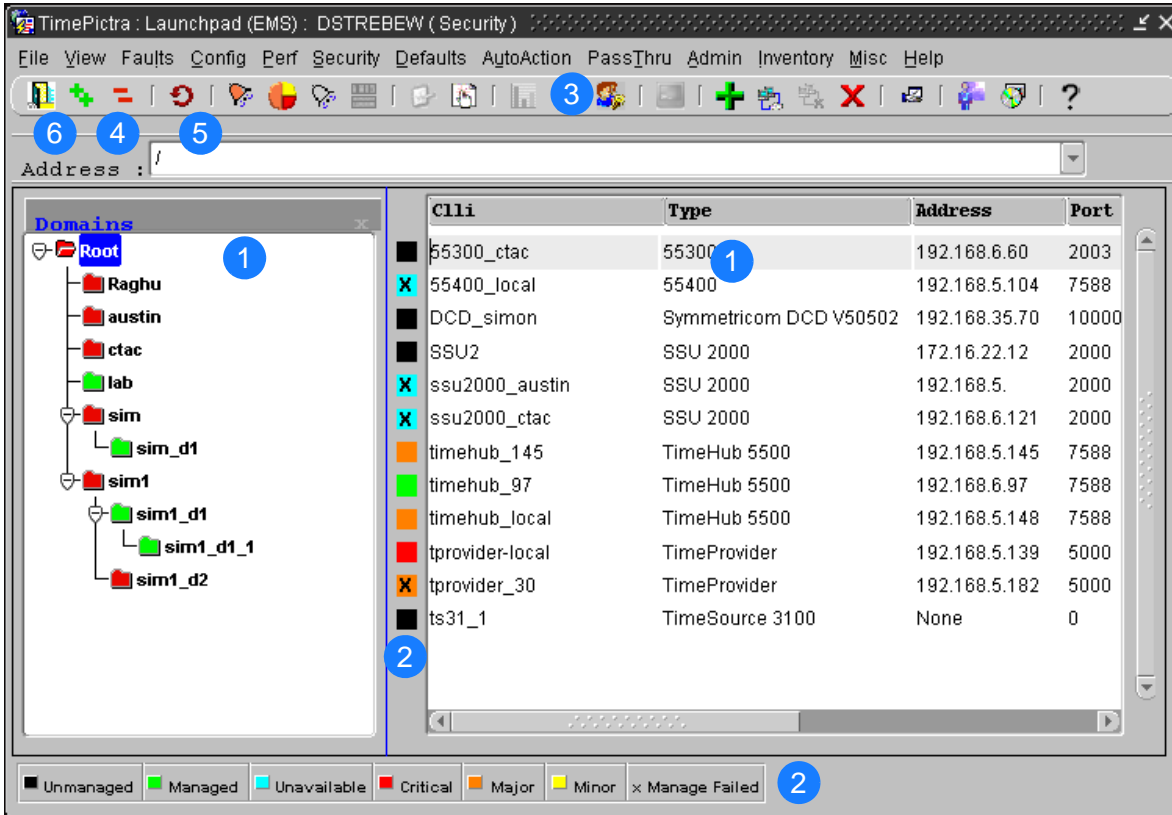
Figure 2-3.   The Launch Pad

Table 2-2. 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.
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 Chapter 4, Network Topology – The Launch Pad.

Table 2-2. Launch Pad Description (Continued)

Item	Description
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 2-3 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 2-3 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.

Table 2-3. 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.
	AlarmMapping...	None	Invokes the Alarm Mapping 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.

Table 2-3. Launch Pad Menu Actions (Continued)

Main Menu	Menu Item	Associated Shortcut Icon	Action
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.
	Performance Utility	None	Invokes the Performance Utility dialog box. *Note:* The Performance Utility menu item is active only if the TimePictra Performance Analyzer option is installed and active.
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.

Table 2-3. Launch Pad Menu Actions (Continued)

Main Menu	Menu Item	Associated Shortcut Icon	Action
Inventory	Inventory...		Invokes the NE Inventory dialog box.
Misc	Overall System Report...	None	Invokes the Overall System Report dialog box.
	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.
	User Preference	None	Invokes the User Preference dialog box.
Help	About TimePictra		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

When a TimePictra user session is started in the X-Windows environment, the HP OpenView Network Node Manager (NNM) 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.

The following procedure explains how to start an X-windows-based user session.

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 default level of capability that the user is granted when using the system. The User Classes, on page 45 of this manual explains user groups in more detail.

Notes:
1. A given user's access capabilities can be modified by the user's creator, however, every user is initially assigned to one of the three default user groups.
2. Prior to logging in, the user needs to be created with the same name on the system. Refer to TimePictra User Administration, on page 173 of this manual for more information.
3. 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.

---

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.

4. Enter the following command to start the TimePictra operator session.

   ```
   tpstart
   ```

Notes:

1. Do not use the command /opt/OV/bin/ovw to start HP Openview windows.

2. If, after entering the `tpstart` command, the following message is displayed:

    open TimePictra.log failed
    : Permission denied

    Enter the following commands as user "root" to allow write access to the TimePictra.log file from the tpstart process:

    chown otroot:dba /var/opt/osmf/share/log/TimePictra.log
    chmod 0777 /var/opt/osmf/share/log/TimePictra.log

When the TimePictra session starts, the main Root map will be displayed on the monitor, and will appear similar to the following figure.
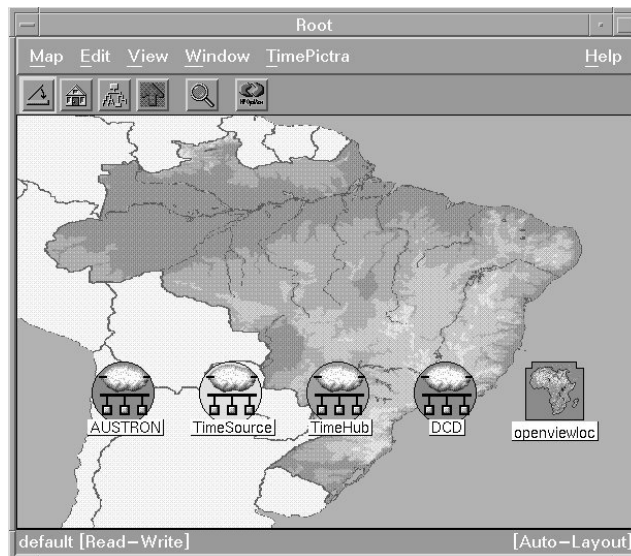
Notes:

1. 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.

2. 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

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.

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. Close the JInitiator window.

Chapter 3 Network Topology - Synchronization Maps

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

In This Chapter

- Overview
- In This Chapter
- 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 Chapter 2, 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 under the "root" map, 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 3-1.
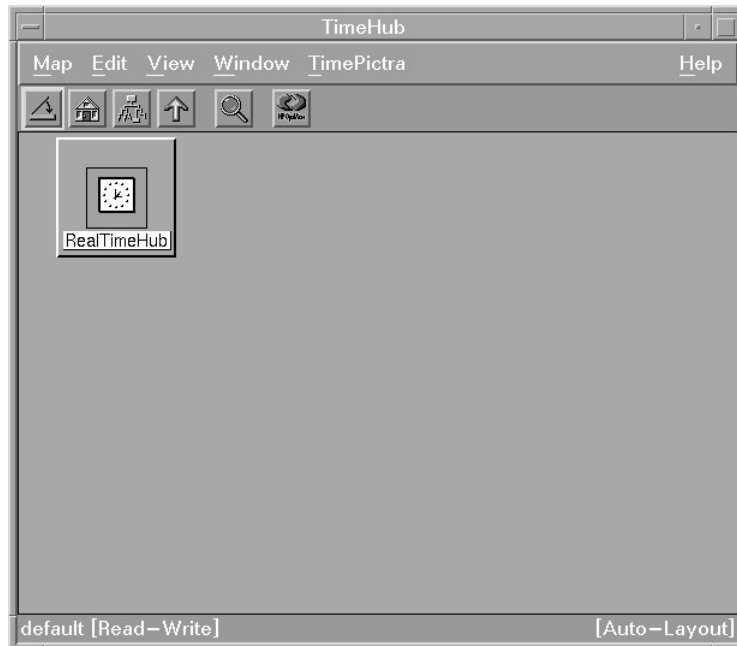
Figure 3-1.   Synchronization Sub-Map

Synchronization maps and sub-maps are built using various symbols to represent elements of the network, as seen in Figure 3-1.

Synchronization Map Symbology

The software uses several basic types of symbols to represent the network topology.
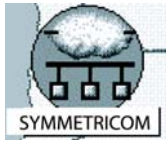
At the highest level, a synchronization map or sub-map is represented in the OV display as a parent symbol, or container. Containers can be of several types; a representative symbol is shown on the left. Double clicking on the container symbol for a map or sub-map explodes it into the sub-map, which 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
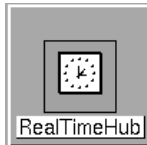
This symbol is used in a sub-map to represent a Network Element (NE).   The color of this symbol will vary to represent its current management status or the severity level of the most urgent alarm currently present on the NE it represents. Refer to Status Representation, on page 67.

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 3-1 shows the status represented by the color of the symbols.

Table 3-1. 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.

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 3-2 shows this status representation.

Table 3-2. 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 3-2 illustrates this:
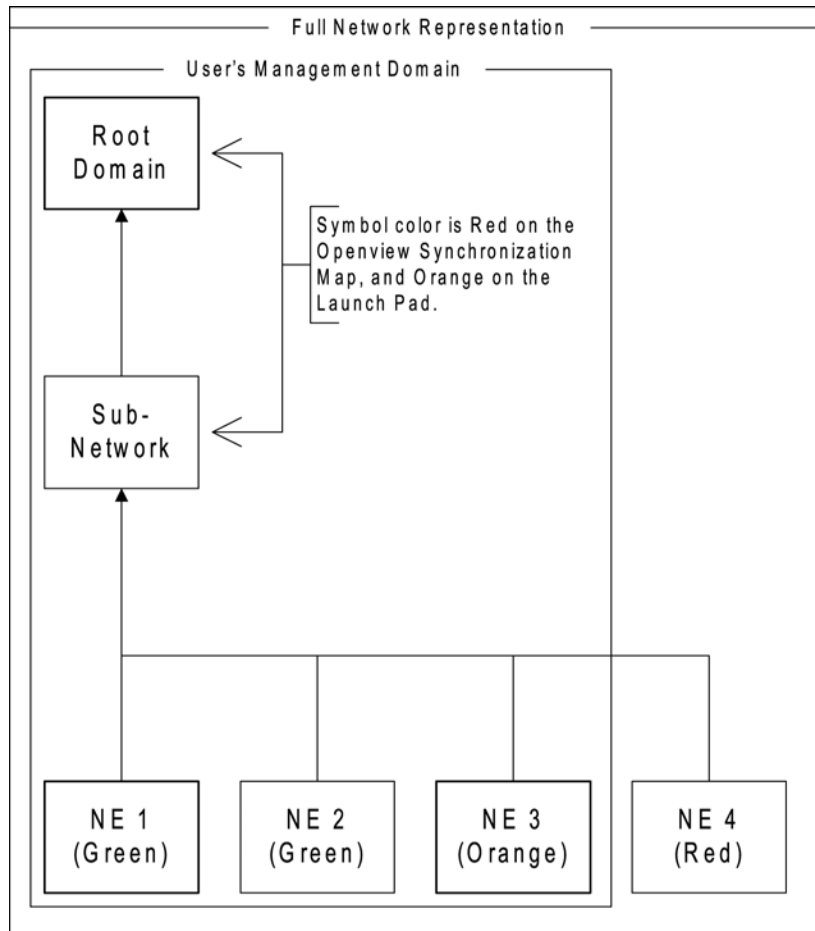
Figure 3-2.   Status Propagation

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 Chapter 5, 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 Chapter 5, 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 Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad.

Creating 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. The following procedure explains how to create a new container symbol, then explode it into an empty sub-map.

Notes:

1. Users of the Security class can perform this procedure.
2. Sub-maps can be created up to five layers deep in TimePictra, including the "root" map.
3. Empty submaps can be created from the synchronization map either using this procedure, or the equivalent procedure in Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad. When creating an empty submap using the Launch Pad, only the procedure in Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad can be used.
4. When you are creating sub-maps, you might want to adhere to a suggested containment hierarchy. A typical containment hierarchy is: Network→Location→NE.

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.

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.

Notes:

1. 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.

2. 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.

Adding a Network Element Symbol to the Map

The following procedure 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 Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad.

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 Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad. When adding network element symbols using the Launch Pad, however, only the procedure in Chapter 5, 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.

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.

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.

Adding 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.

The following procedure explains how to add a ghost NE symbol to the map.

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.

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.

Deleting Container and Network Element Symbols

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 Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad. When deleting symbols using the Launch Pad, however, only the procedure in Chapter 5, Network Topology Creation – over Openview Synchronization Map and Launch Pad can be used.

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

4. 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 Chapter 5, 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.

The following procedure explains how to delete container and NE symbols.

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.

Chapter 4 Network Topology – The Launch Pad

This chapter describes the Launch Pad application and how to interpret the visual icons used.

In This Chapter

- Overview
- Status Representation
- Topology Updates

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 4-1 shows an example of a simple containment tree displayed in the target list area.
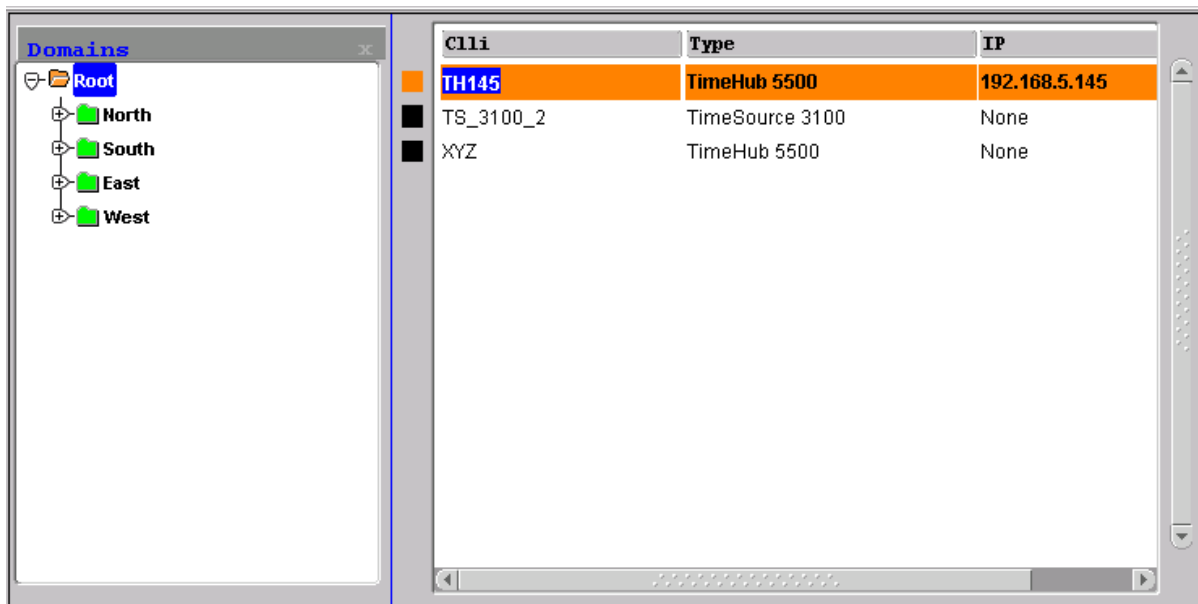
Figure 4-1.   Containment Tree

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 five layers deep in TimePictra, including the "root" domain.

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 4-1 shows the status represented by the color-coding.

Table 4-1. 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 4-2 shows the status represented by the color-coding.

Table 4-2. 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.

Table 4-2. Root Domain / Sub-Network Status Representation (Continued)

Color	Status
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 4-2 illustrates this:

```
┌─────────────────── Full Network Representation ───────────────────┐
│                                                                   │
│  ┌────────── User's Management Domain ──────────┐                 │
│  │                                              │                 │
│  │  ┌──────────┐                                │                 │
│  │  │  Root    │ ◁──┐                           │                 │
│  │  │ Domain   │    │                           │                 │
│  │  └──────────┘    │   Symbol color is Red on the                │
│  │       ▲          │   Openview Synchronization                  │
│  │       │          │   Map, and Orange on the                    │
│  │       │          │   Launch Pad.                               │
│  │  ┌──────────┐    │                           │                 │
│  │  │  Sub-    │ ◁──┘                           │                 │
│  │  │ Network  │                                │                 │
│  │  └──────────┘                                │                 │
│  │       ▲                                      │                 │
│  │       │                                      │                 │
│  │  ┌────┴─────┬──────────┬──────────┐          │                 │
│  │  │          │          │          │          │                 │
│  │ ┌──────┐ ┌──────┐  ┌──────┐   ┌──────┐       │                 │
│  │ │ NE 1 │ │ NE 2 │  │ NE 3 │   │ NE 4 │       │                 │
│  │ │(Green)│ │(Green)│ │(Orange)│  │(Red) │     │                 │
│  │ └──────┘ └──────┘  └──────┘   └──────┘       │                 │
│  └──────────────────────────────────────────────┘                 │
└───────────────────────────────────────────────────────────────────┘
```
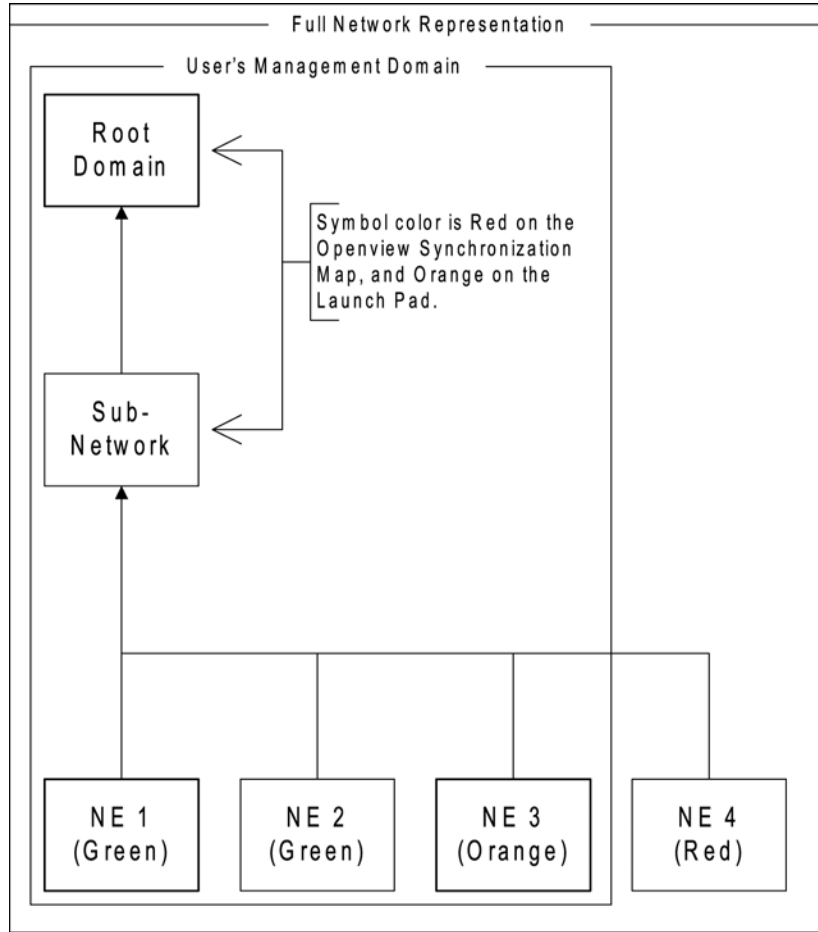
Figure 4-2.   Status Propagation

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. The following procedure describes how set up the automatic refresh feature.

> **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.

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

Chapter 5 Network Topology Creation – over Openview Synchronization Map and Launch Pad

In This Chapter

- Topology Creation
- Network Element Management

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 five layers deep in TimePictra, including the "root" domain.
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 Network Element Management, on page 98.

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 5-1 and Table 5-1 briefly describe the Sub-Network Management dialog box.
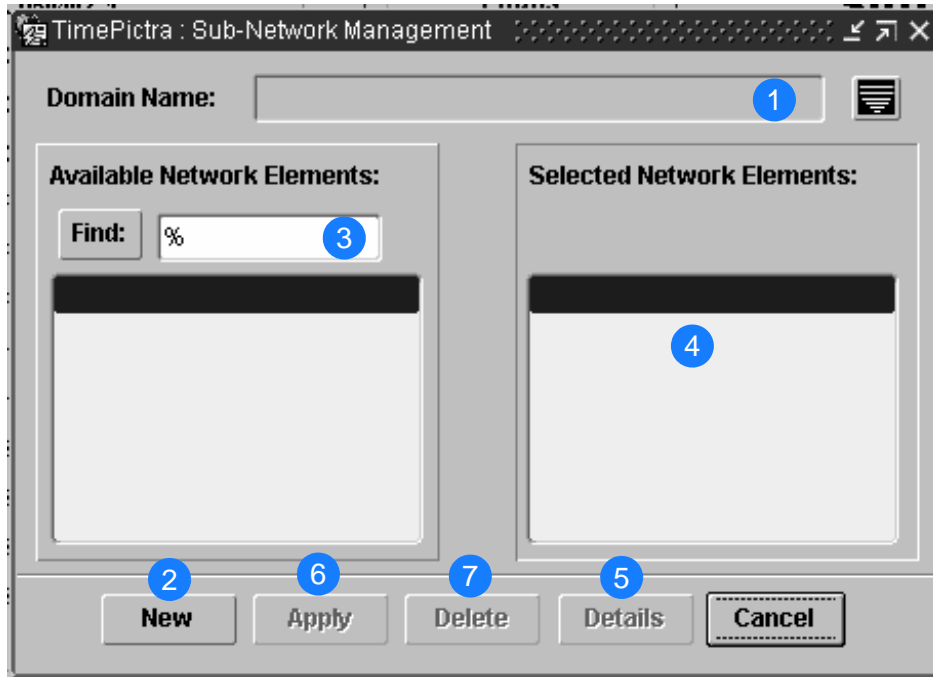
Figure 5-1.   Sub-Network Management Dialog Box

Table 5-1. 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.

Table 5-1. Sub-Network Management Dialog Box Description

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.

Creating a Sub-Network

Note: Sub-networks can be created up to five layers deep in TimePictra, including the "root" map.

The following procedure explains the creation of sub-networks.

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.

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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:
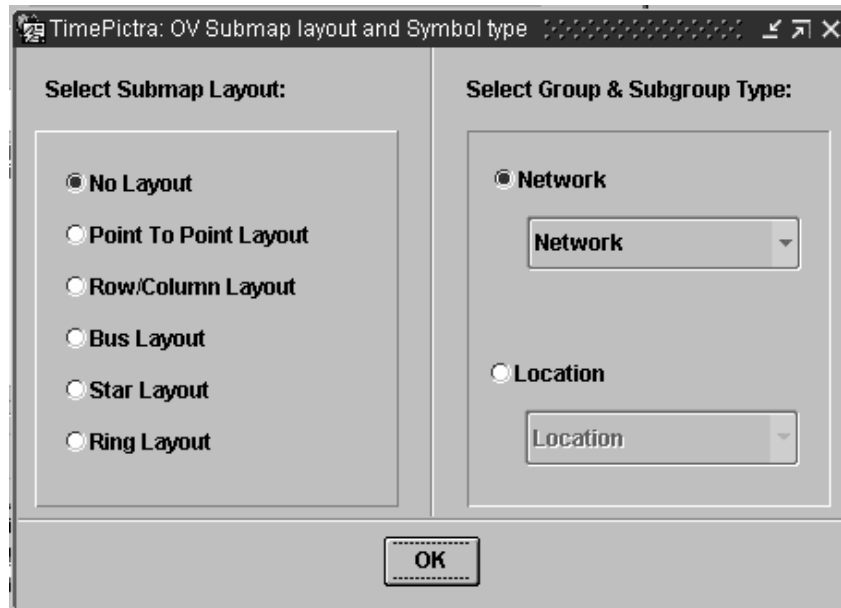
4. Choose settings in the OV Submap Layout and Symbol Type dialog box as is appropriate:

- 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.

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.

> **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.

Deleting a Sub-Network

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

> **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. The procedure in Deleting Network Elements, on page 97 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.

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, on page 93.

Adding 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 5-2 and Table 5-2 briefly describes the Add Network Element dialog box.
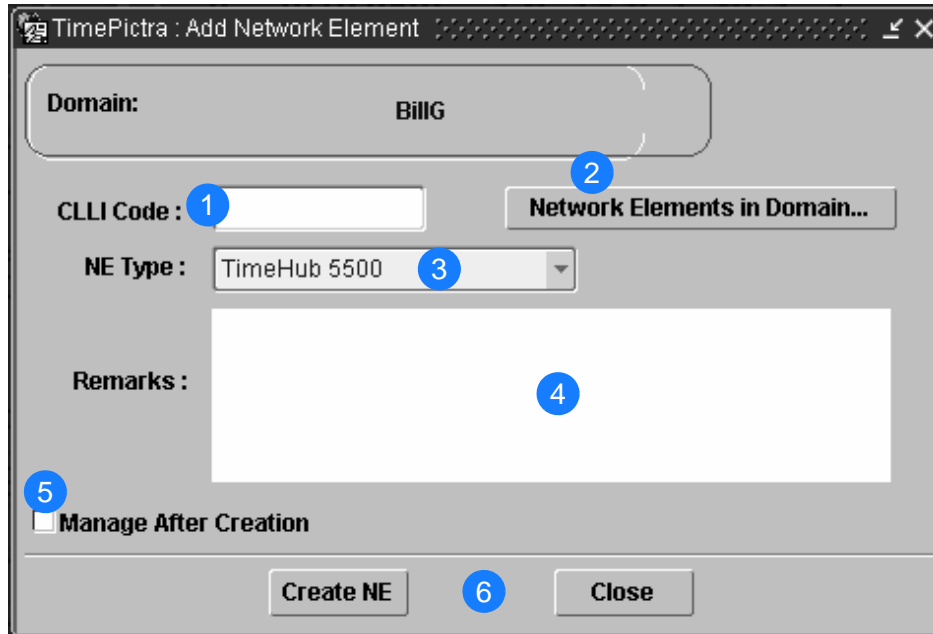
Figure 5-2.   Add Network Element Dialog Box

Table 5-2. 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	Choose the type of network element to be added in the "NE Type" drop-down list. *Note:* The "NE Type" drop-down list will display only those NE types which are licensed for management by the TimePictra system. Your system administrator can obtain and install upgrades to the TimePictra license file if necessary.
4	The "Remarks" field is provided so that any other miscellaneous remarks regarding the network element can be entered. *Note:* Remarks that are entered into this field appear in the NE Details dialog box that is accessed from the File menu in the Launch Pad. The NE Details dialog box can be invoked by all users, so be careful not to include security sensitive information, such as passwords, in the Remarks field.

Table 5-2. Add Network Element Dialog Box Description

Item	Description
5	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 Network Element Management, on page 98. If the "Manage After Creation" check-box is not selected, the network element is created in the database, and set to the unmanaged state.
6	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.

Adding Network Elements

The following procedure 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 Initially Managing a Network Element, on page 100.

Notes:

■ Users of the Security class can perform this procedure.

■ 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.

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.

Notes:
1. Remarks that are entered into the "Remarks" field appear in the NE Details dialog box that is accessed from the File menu in the Launch Pad. The NE Details dialog box can be invoked by all users, so be careful not to include security sensitive information, such as passwords, in the "Remarks" field.
2. 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.

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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.

Notes:
1. If the number of network elements of a given type (SSU, PRS, etc.) that have been created are already at the maximum amount allowed by the TimePictra license, the network element creation operation will fail when the Create NE button is clicked. Your system administrator can obtain and install upgrades to the TimePictra license file if necessary.
2. 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 Initially Managing a Network Element, on page 100 for information on managing the network element.

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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.

> **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.

Deleting 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 Unmanaging a Network Element, on page 101.

The following procedure describes how to delete network elements.

> **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 <u>D</u>elete NE... from the <u>A</u>dmin 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.

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 5-3 and Table 5-3 briefly describe the Manage Network Element dialog box.
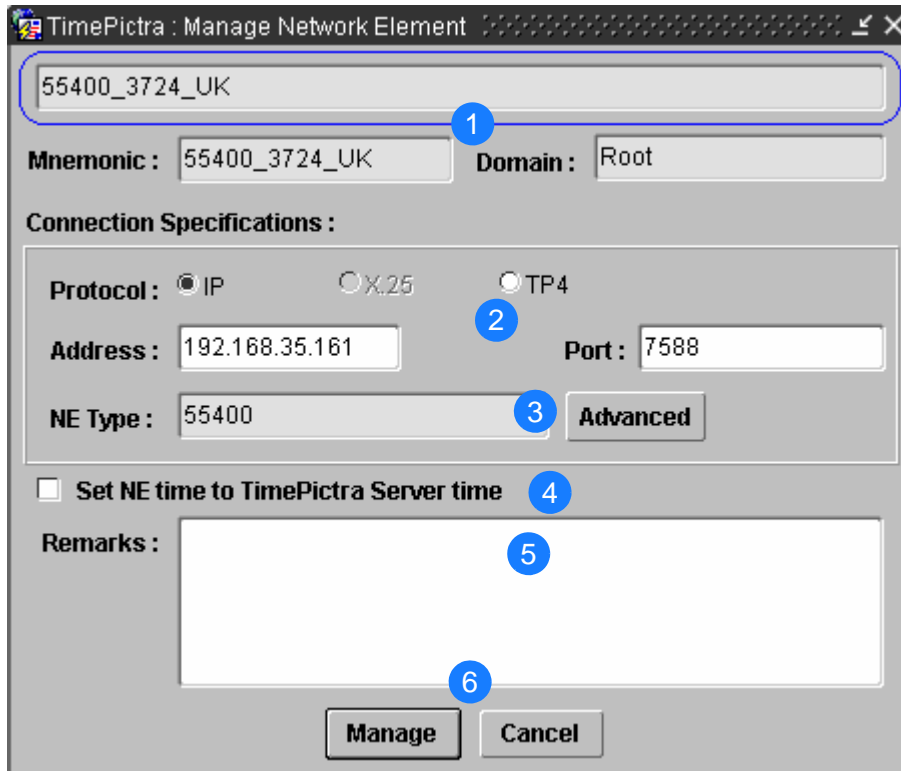
Figure 5-3.   Manage Network Element Dialog Box

Table 5-3. 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.
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.
	The default ports are shown below: **NE** **Port** TimeHub 7588 55400 7588 TimeProvider 5000 SSU-2000 2000 PRR-10 4000 TS 3x00 5551
	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	If the "Set NE time to TimePictra Server time" check box is checked, and if the function is supported by the NE, the NE time is automatically set to the local TimePictra server time. This function is supported for the SSU2000, TimeHub, 55400, DCD and TimeSource.
5	The "Remarks" field is provided so that any other miscellaneous remarks regarding the network element can be entered.
	Note: Remarks that are entered into this field appear in the NE Details dialog box that is accessed from the File menu in the Launch Pad. The NE Details dialog box can be invoked by all users, so be careful not to include security sensitive information, such as passwords, in the Remarks field.
6	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 Managing 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. The following procedure explains how to set up the software to initially manage network elements.

> **Notes:**
> 1. Users of the Security and Administrator 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 Step 1, on page 100 and Step 2, on page 100 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.

Note: Remarks that are entered into the Remarks field appear in the NE Details dialog box that is accessed from the File menu in the Launch Pad. The NE Details dialog box can be invoked by all users, so be careful not to include security sensitive information, such as passwords, in the Remarks field.

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.

Caution: 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.

Unmanaging a Network Element

Notes:
- Users of the Security and Administrator classes can perform this procedure.
- 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. The following procedure explains how to unmanage a network element.

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 <u>U</u>nmanage NE... from the <u>A</u>dmin menu.

3. Click **Yes** when the question `Do you want to unmanage ne_name?` appears, where *ne_name* is the name of the selected NE.

> **Note:** 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.

Remanage a Network Element

> **Note:** To manage a network element for the first time, refer to Initially Managing a Network Element, on page 100.

The following procedure explains how to remanage a network element.

> **Note:** Users of the Security and Administrator 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 <u>M</u>anage NE... from the <u>A</u>dmin 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.

> **Note:** Remarks that are entered into the Remarks field appear in the NE Details dialog box that is accessed from the File menu in the Launch Pad. The NE Details dialog box can be invoked by all users, so be careful not to include security sensitive information, such as passwords, in the Remarks field.

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.

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.

> **Caution:** 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.

Chapter 6 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.

In This Chapter

- Overview
- In This Chapter
- Network Element Status
- Fault Analysis
- Alarm Management
- Event Management
- Alarm Mapping

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

The following procedure explains how to view the status panel of a NE.

> **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.

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

   – SSU-2000 – Appendix I

   – TimeProvider – Appendix J

   – 55300A – Appendix K

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.

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.

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 6-1 shows an example of this type of chart.
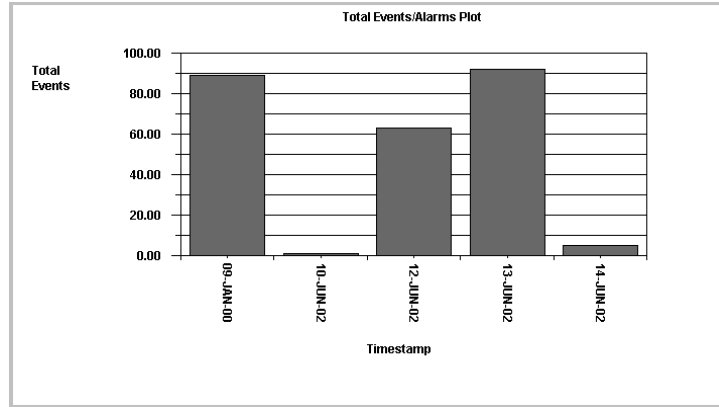
Figure 6-1.   Analysis Results – Date Fault Analysis

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 6-2 shows an example of this type of chart.
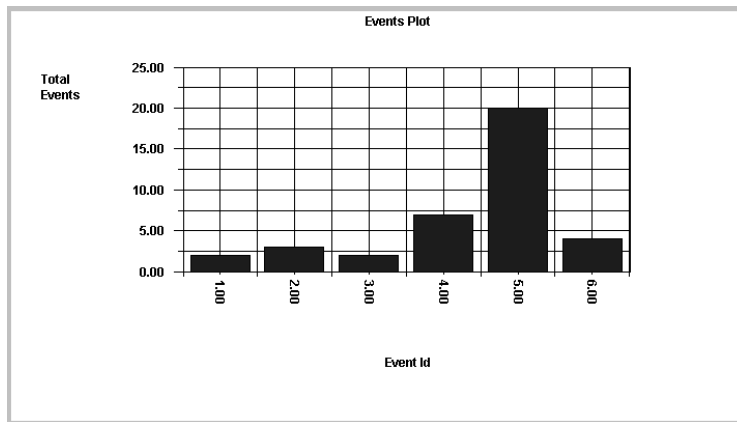
Figure 6-2.   Analysis Results – Events Fault Analysis

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 6-3 shows an example of this type of chart.
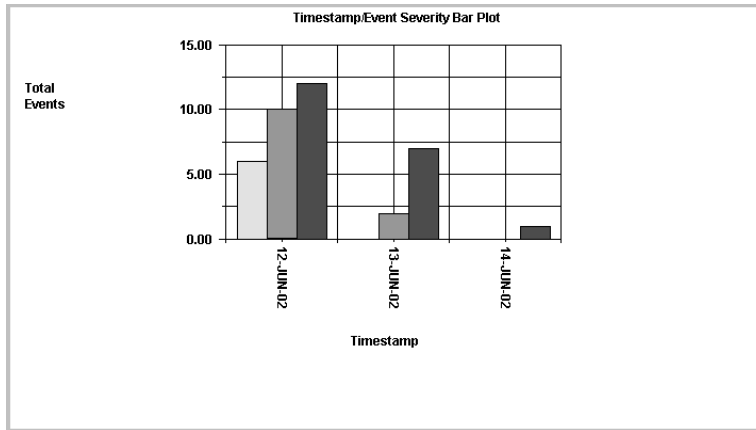
Figure 6-3.   Analysis Results – Severity Fault Analysis

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 6-4 shows an example of this type of chart.
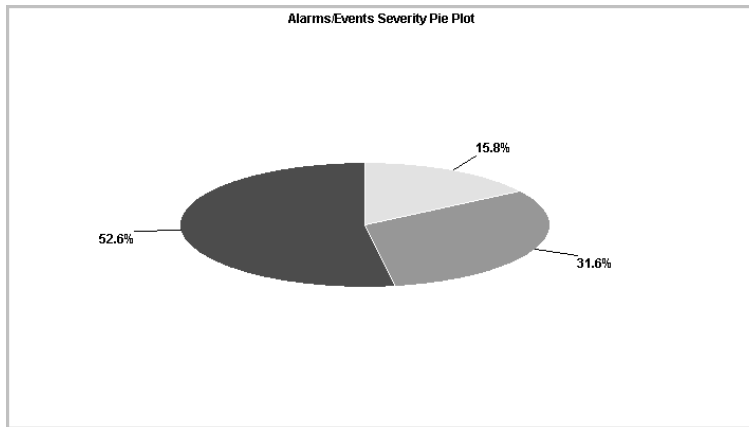
Figure 6-4.   Analysis Results – Pie Severity Fault Analysis

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 6-5 shows an example of this type of chart when two NEs are specified; TH5500_145 and HP55400_176.
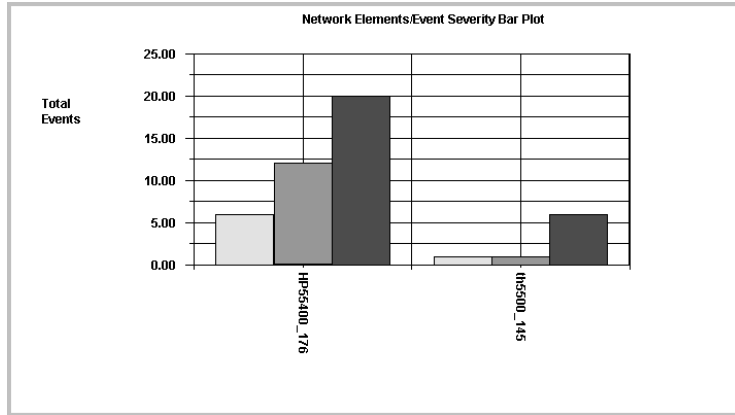
Figure 6-5.   Analysis Results – NE Severity Analysis

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 6-6 shows an example of this type of chart when two NEs are specified; TH5500_145 and HP55400_176.
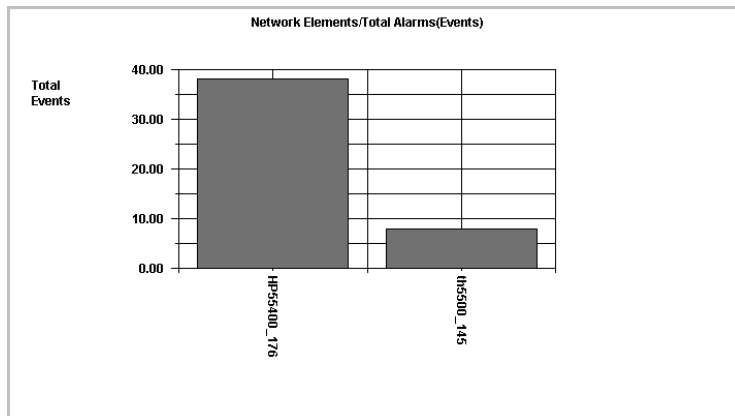
Figure 6-6.   Analysis Results – NE Alarm Analysis

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 6-7 and described in Table 6-1.

Note: In Figure 6-7, the Fault Analysis dialog box is shown displaying the "Events" plot type.
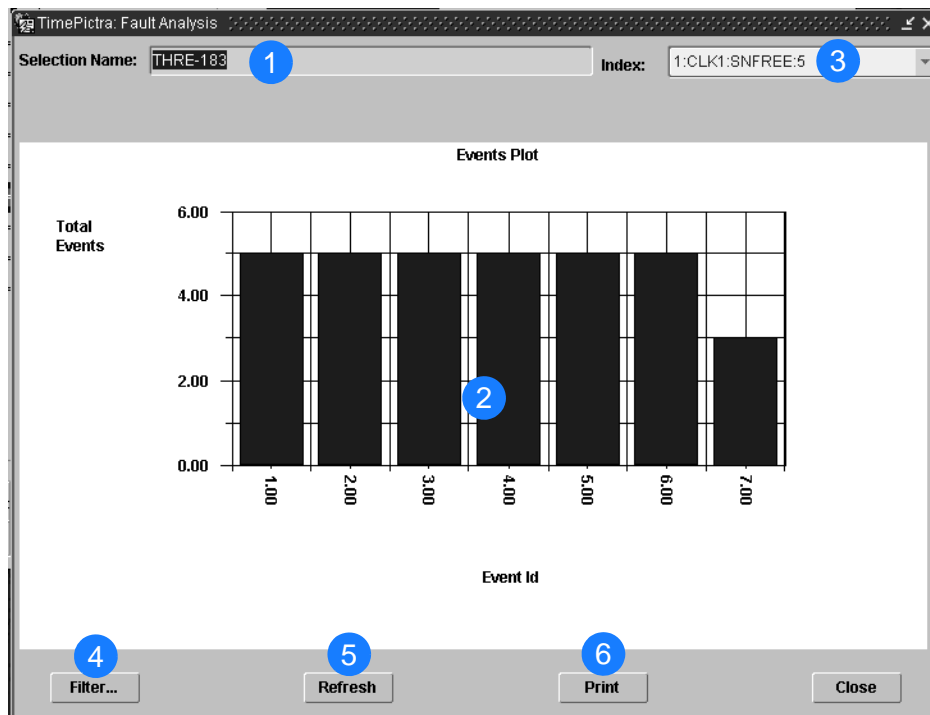
Figure 6-7.   Fault Analysis Dialog Box

Table 6-1. 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.
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 Using the Fault Analysis Filter Function, on page 115 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 in Print the Fault Analysis Plot – Web-Based User Sessions, on page 118, or Print the Fault Analysis Plot – X Windows-Based User Sessions, on page 119, for details.

Perform Fault Analysis

The following procedure 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 the procedure in Using the Fault Analysis Filter Function, on page 115.

> **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.

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.

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 the following procedure.

> **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 the procedure in Perform Fault Analysis, on page 115, 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 6-2.

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.

   Table 6-2 explains the fault analysis filtering criteria.

Table 6-2. 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).

Table 6-2. Fault Analysis Filtering Criteria (Continued)

Filtering Criteria	Description
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
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

Table 6-2. Fault Analysis Filtering Criteria (Continued)

Filtering Criteria	Description
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

The following procedure 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 the procedure in Print the Fault Analysis Plot – X Windows-Based User Sessions, instead.

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 the procedure in Perform Fault Analysis, on page 115, 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.

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

The following procedure 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 the procedure in Print the Fault Analysis Plot – Web-Based User Sessions, on page 118 instead.

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 the procedure in Perform Fault Analysis, on page 115, 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. The Page Setup dialog box appears.

5. In the Page Setup dialog box, choose the appropriate page-related settings, then click OK. The Print Job dialog box appears.

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. 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.

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 6-8 and Table 6-3 briefly explain the Alarm Viewer dialog box.
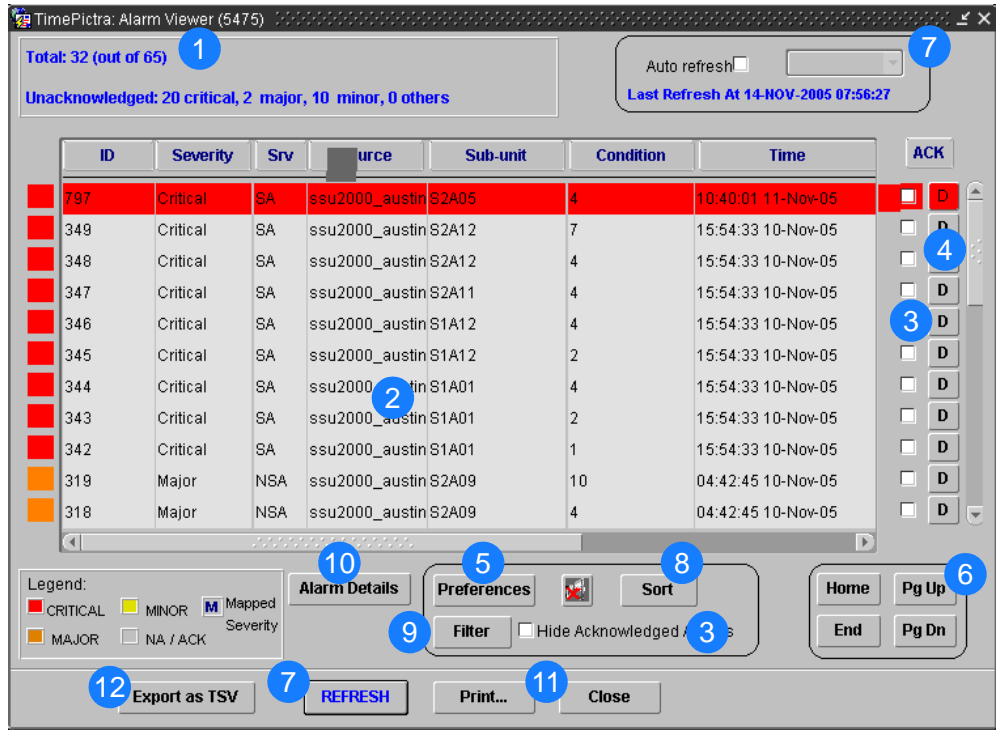
Figure 6-8.   Alarm Viewer Dialog Box

Table 6-3. 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 6-3. Alarm Viewer Dialog Box Description (Continued)

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. Note that non-alarmed events, such as Standing Conditions, go to alarm viewer if clears are expected for them. Typically, within a few hours the regular alarm sync forcibly discharges them if they are not reported by RTRV-ALM type of commands. 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, on page 122 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. *Note:* When the letter M appears to the left of the ACK check box, it indicates that the alarm severity has been changed using the Alarm Mapping function. See Alarm Mapping, on page 144.
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, on page 126 for more information. *Note:* When audio notification is enabled, then auto-refresh is automatically enabled.
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.

Table 6-3. Alarm Viewer Dialog Box Description (Continued)

Item	Description
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. *Note:* When audio notification is enabled, then auto-refresh is automatically enabled.
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, on page 127 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, on page 128 for more information.
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. The color of the displayed alarm corresponds to the color of the alarm level in the Legend box. The Mapped Severity function allows you to change an incoming alarm severity if you want to display it at a different level. Refer to the task View Details of a Specific Alarm, on page 130 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, on page 132 for more information.
12	Clicking the Export as TSV button exports the existing alarm messages into a Tab-Separated Value (TSV) file named `alarm_tsv.txt` into the /var/tmp/perf_data directory. If the file already exists, a popup asks if you want to overwrite the file. If this is a web session, another popup asks if you want to view the text file. If you select Yes, then the file appears in a browser window.

View the Alarm Summary

The following procedure explains how to view the alarm summary.

> **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 <u>A</u>larm Viewer... from the Fau<u>l</u>ts 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 6-4.

Table 6-4. Alarm Summary Information

Field[1]	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.
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.

Table 6-4. Alarm Summary Information (Continued)

Field[1]	Description
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.

Note:
  [1] 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.

You can enable or disable a confirmation window that asks "Are you sure?" before the alarm is discharged. The script is `alarm_discharge.ks`, and is located under `/opt/osmf/DB/unsupported` directory. To run this script:

1. Log in as otroot.

2. `cd /opt/osmf/DB/unsupported`

3. ./alarm_discharge.ks mode [YES | NO]

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. If the discharge script is active, a window appears asking you to confirm that you want to discharge the alarm. Click Yes or No, as appropriate.

> **Note:** Once the alarm is discharged, it disappears 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).

The following procedure explains how to set audio notification for unacknowledged alarms.

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.

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

The following procedure explains how to sort alarms for display in the Alarm Viewer dialog box.

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 6-5 (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. You can sort by individual column by clicking on the respective column label.

   Table 6-5 shows the sort criteria.

Table 6-5. 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.

Table 6-5. Alarm Sorting Criteria (Continued)

Sort Criteria	Description
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.

The following procedure explains how to display certain alarms using the filter function.

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 6-6.

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.

Table 6-6 explains the filtering criteria.

Table 6-6. 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

Table 6-6. Alarm Filtering Criteria (Continued)

Filtering Criteria	Description
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 6-9.
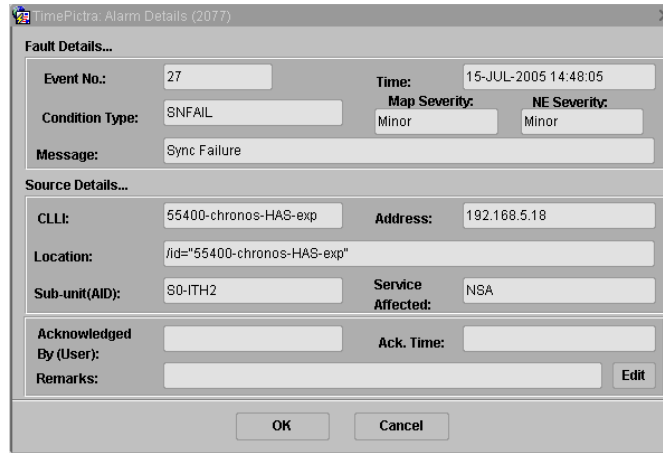
Figure 6-9.   Alarm Details Dialog Box

The Alarm Details dialog box shows more detailed information for the selected alarm. The information in Table 6-7 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 6-7. 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. The following procedure explains how to create an alarm report.

> **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 Sort Alarms for Display in the Alarm Viewer Dialog Box, on page 127 and Display Only Certain Alarms Using the Filter Function, on page 128.

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?`

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:

Figure 6-10. Alarm Report Preview

> **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.

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 6-11 and Table 6-8 explain the Event History Log dialog box.

> **Notes:**
> 1. Performance events are not stored in the Event History Log.
> 2. Expired, discharged, and cleared alarms, as well as other non-alarm events, are all generally referred to as events in this section.
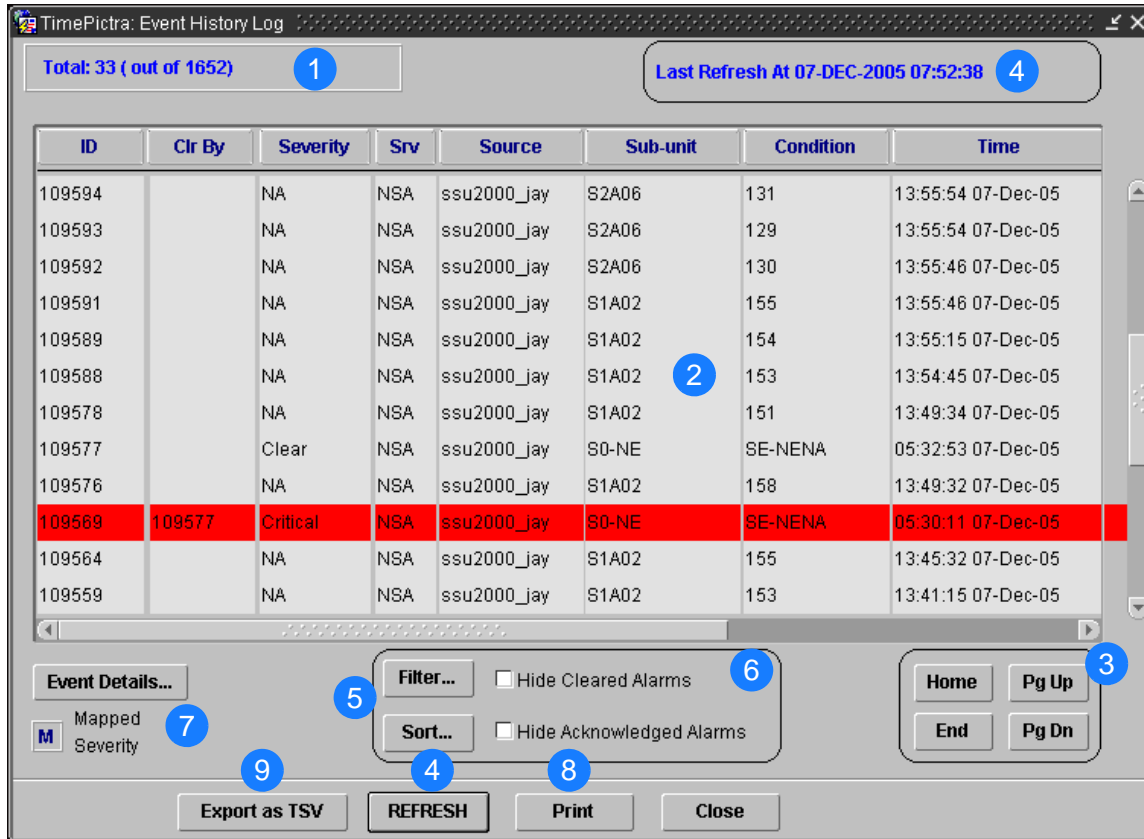
Figure 6-11. Event History Log Dialog Box

Table 6-8. Event History 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 View the Event History Log, on page 136 for an explanation of the information provided in the listing.

Table 6-8. Event History Log Dialog Box Description (Continued)

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. *Note:* When the letter M appears to the left of the vertical scroll bar, it indicates that the alarm severity has been changed using the Alarm Mapping function. See Alarm Mapping, on page 144.
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 Sort Events for Display in the Event Log History Dialog Box, on page 137 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 Display Only Certain Events Using the Filter Function, on page 139 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. The Mapped Severity function allows you to change an incoming alarm severity if you want to display it at a different level. Refer to the task View Details of a Specific Alarm, on page 130 and View Details of a Specific Event, on page 141 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 Create an Event Log Report, on page 143 for more information.
9	Clicking the Export as TSV button exports the existing event messages into a Tab-Separated Value (TSV) file named event_tsv.txt into the /var/tmp/perf_data directory. If the file already exists, a popup asks if you want to overwrite the file. If this is a web session, another popup asks if you want to view the text file. If you select Yes, then the file appears in a browser window.

View the Event History Log

The following procedure explains how to view the Event History Log.

> **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).

   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 6-9:

Table 6-9 summarizes the information for each event.

Table 6-9. 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.

The following procedure explains how to sort events for display in the Event History Log.

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 6-10 (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.

Table 6-10 lists the event sort criteria.

Table 6-10. 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).

Table 6-10. Event Sorting Criteria (Continued)

Sort Criteria	Description
Condition Type	The preassigned type code for the event. Events can be sorted on this field in either ascending or descending alphanumeric order.
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.

The following procedure explains how to display certain events using the filter function.

> **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 6-11.

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.

Table 6-11 explains the event filtering criteria.

Table 6-11. 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).
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

Table 6-11. Event Filtering Criteria (Continued)

Filtering Criteria	Description
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 6-12.
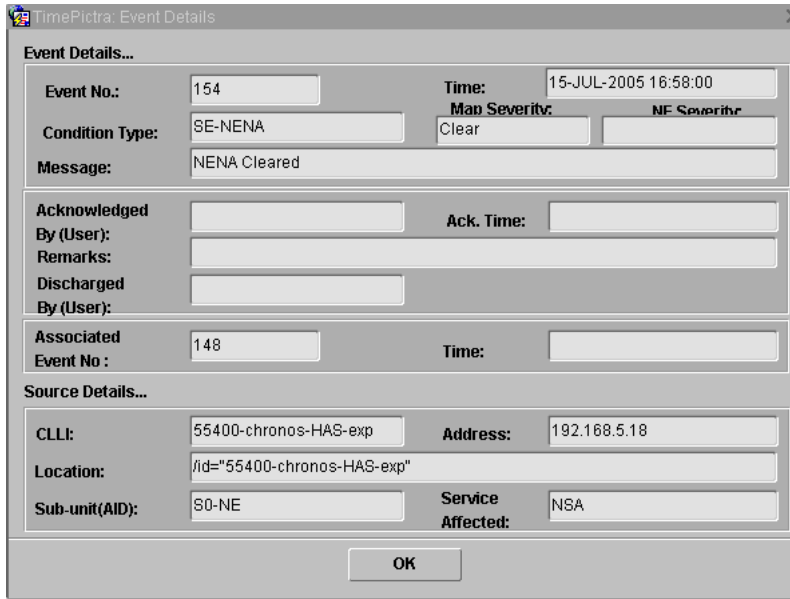
Figure 6-12.   Event Details Dialog Box

The dialog box shows more detailed information for the selected event. The information in Table 6-12 is provided in addition to the summary information given in the Event History Log dialog box.

Table 6-12. 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.

The following procedure explains how to create an Event Log report.

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 Sort Events for Display in the Event Log History Dialog Box, on page 137 and Display Only Certain Events Using the Filter Function, on page 139.

2. Click the Print... button in the Event Log dialog box. 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?`

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:
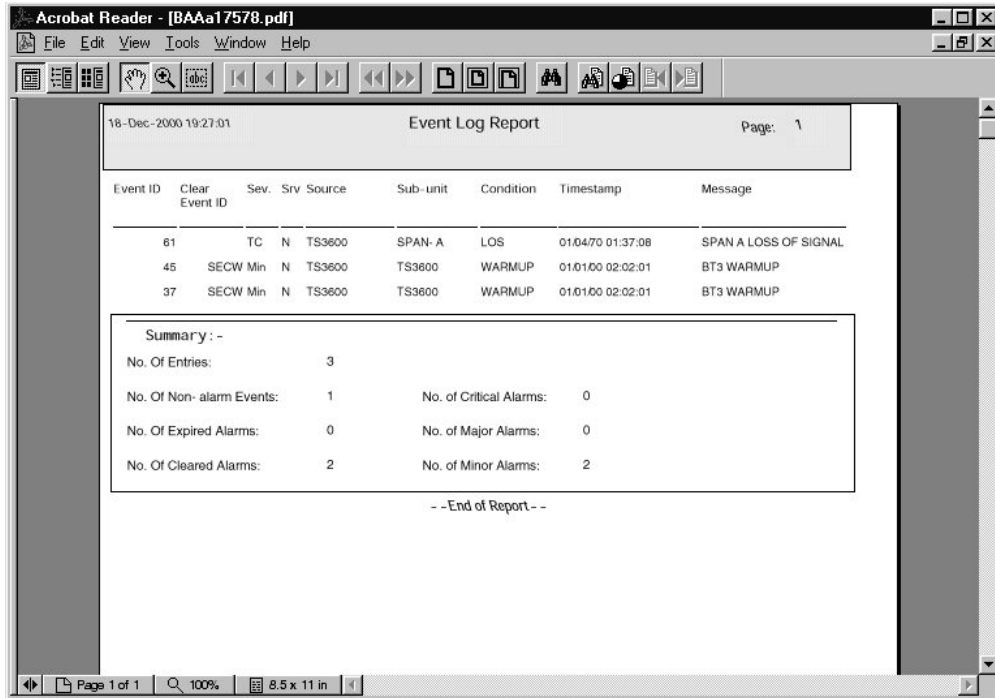
Figure 6-13.   Event Report Preview

> **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.

Alarm Mapping

With the Alarm Mapping feature, the Network Operations Center (NOC) can now change incoming severities of alarms to the severity they would like to see in their monitoring screens. All other modules within TimePictra will also treat an alarm with the new mapped severity. A high level of granularity is supported while creating the alarm mappings, which means that alarm mappings can be broad or made very specific.

> **Note:** When you change an alarm severity mapping it does not change the severity level of alarms already in the system. Only new alarms that come in after the map is declared are effected.

TimePictra supports up to 500 alarm severity mappings per system. The severity can be mapped to a different value by matching CondType, AID and NE-Type.

For example, an SSU-2000 with an incoming INPLOS condtype alarm severity level of MJ (Major) can be mapped to an INPLOS condtype with a severity of CR (Critical), MN (Minor), or with no severity. An alarm level of no severity is a regular event that goes directly into the Event-History-Log and not into the Alarm-Viewer. Also, for a particular NE-type, such as a TimeHub, an incoming event (no alarm) for a condtype with no severity can be mapped for a severity of CR, MJ, or MN.

> **Note:** "CLEAR" Events are not mapped. This mapping applies to the alarms/event shown by TimePictra or by the TimePictra SNMP option.

Setting up Alarm Mapping

Use the following procedure to set up alarm mapping.

1. At the Launch Pad screen, select the **Faults** menu item and click **AlarmMapping...** to open the Alarm Mapper screen (Figure 6-14).

Id	NE Type	Clli	Condition Type	Severity Mapped To	AID	Enable
3	55400	*	OPCDMS,SNFAIL,ITHN(	Minor	S2-ITH2,S0-ITH1	Yes
7	*	*	INPLOS,INPDISQ	Major	ITH-1,ITH4,ITH-7	Yes
6	SSU2000	BC-SITE-23	2,3,5,8	Critical	S2AO4,S2AO8-5	Yes
8	TPROVIDER	TCBMS83	CLKFREE,EXPFAIL,CON	Major	IOC1,SYS,IOC2	No

Total: 4   (out of: 4   )   Others: 0
Major: 2   Minor: 1   Critical: 1
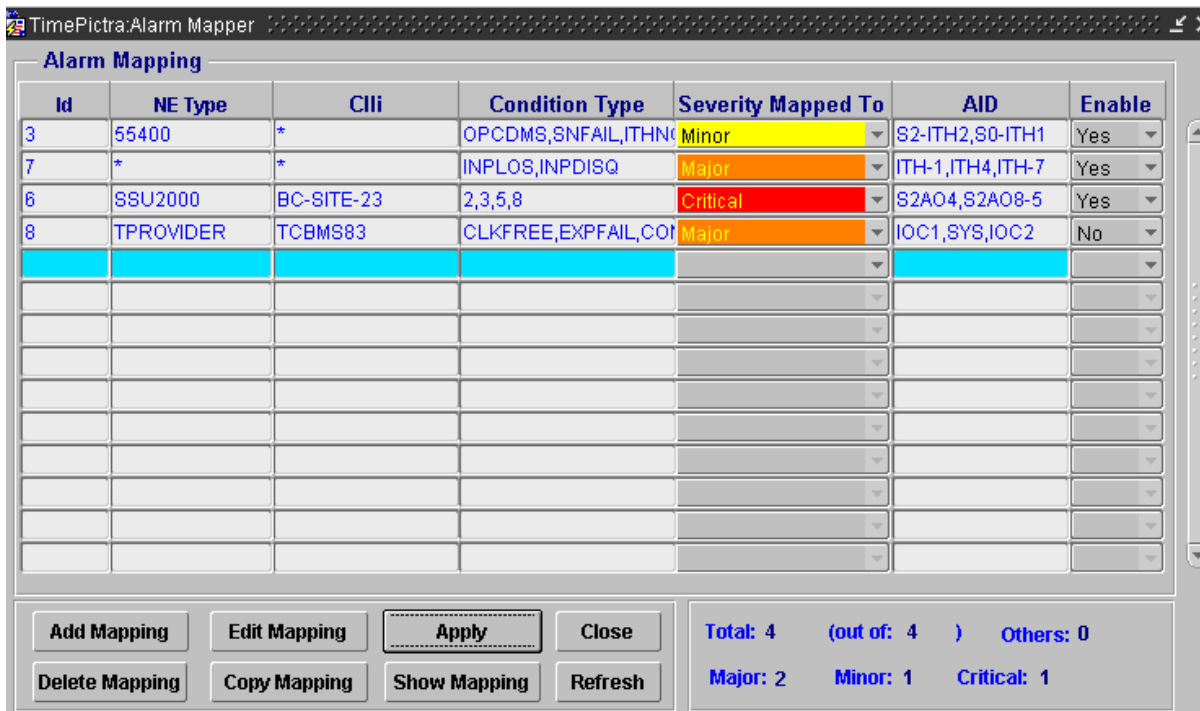
Figure 6-14.   TimePictra Alarm Mapper

2. To create a mapped severity, click **Add Mapping** to display the **Add Alarm - Event** screen (Figure 6-15).
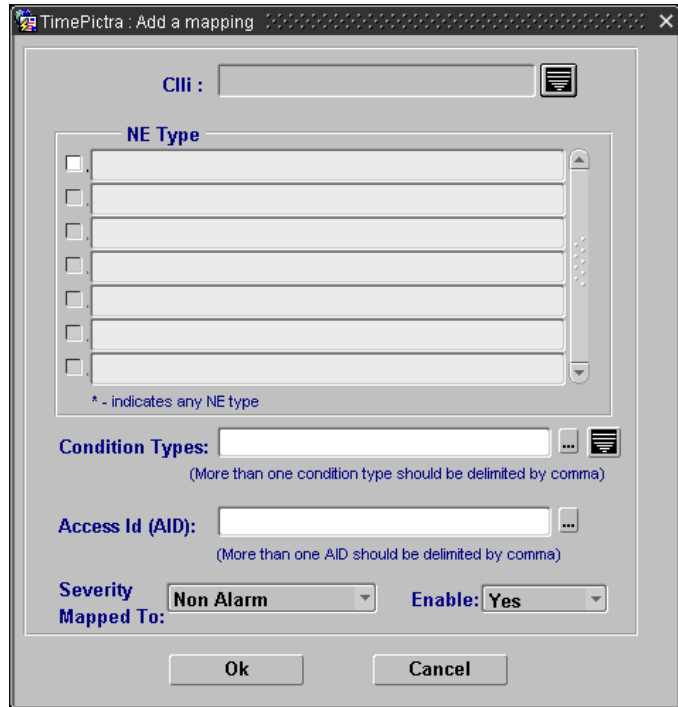
Figure 6-15.   TimePictra Add Alarm – Event Screen

3. Click located to the right of the CLLI: display box to open the CLLI (i.e
unique NE name) screen to see a list of network elements (NEs) (Figure 6-16).
Select * for all NEs, or select a specific NE and click **OK**.
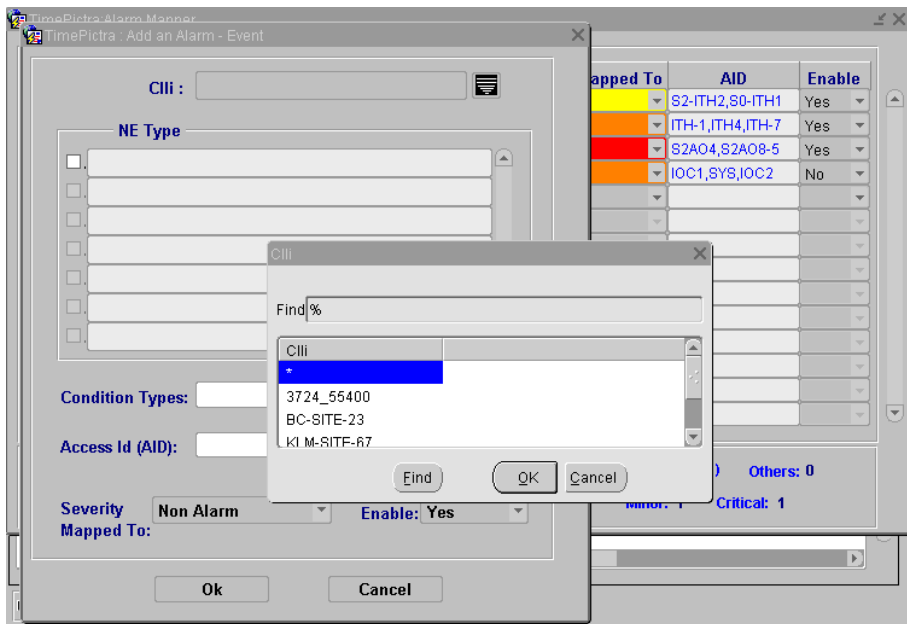
Figure 6-16.   Network Element List

4. Click the check box next to the NEs that you want to select for alarm mapping. Click the * check box to select all available NEs (Figure 6-17).
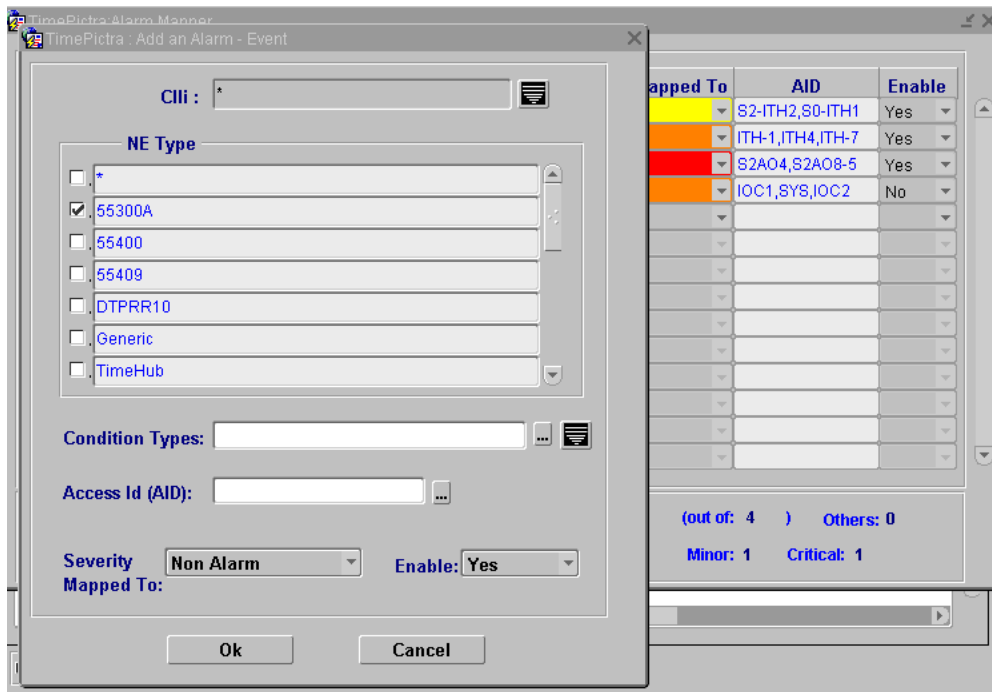
Figure 6-17.   Network Element Selection Screen

5. Click [icon] located to the right of the Condition Types (i.e. name of alarm) text entry box to open the window that shows all condition types for a particular NE type (Figure 6-18). Select the desired event code or enter an event code in the Find text entry box and click **Find**. Or, click the small button to the right of the text entry box to open a text entry window and enter several comma separated condition types or an asterisk (*) to select all Condition Types, and click **OK**.

> **Note:** Condition Type, name of alarm/event, and event code are interchangeable names, and mean the same.
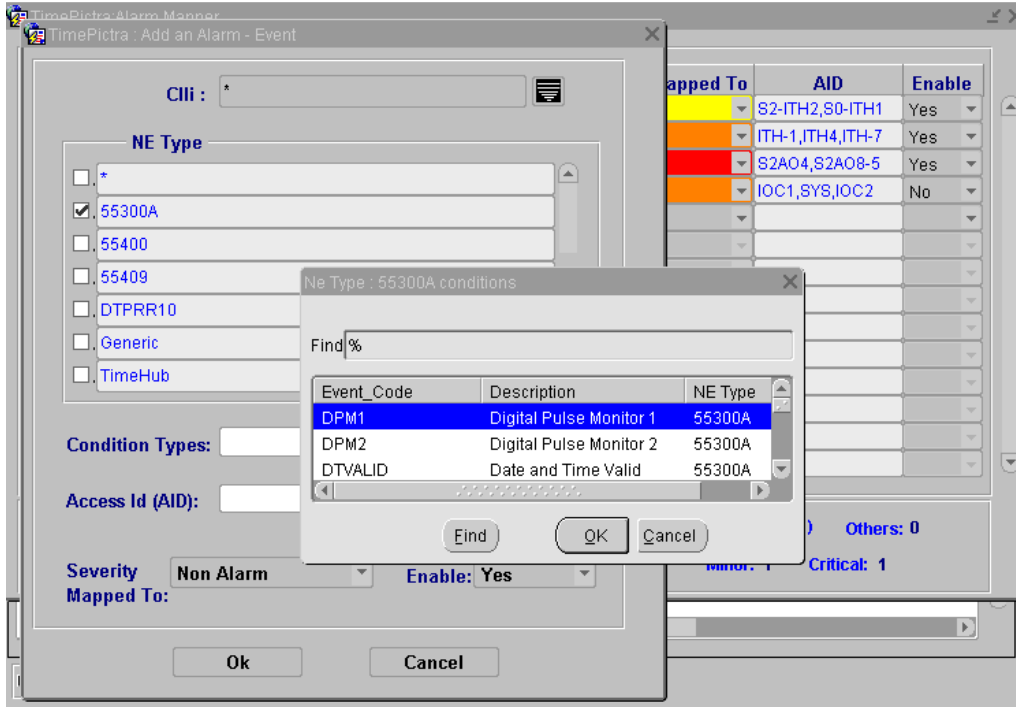
Figure 6-18.   Alarm Mapping Condition Types Selection

6. Enter a desired Access ID in the text entry box, or click the button to the right of the text entry box to open a text entry window and enter several comma separated AID values or an asterisk (*) to select all AIDs, and click **OK**.

7. Select the alarm severity level for this mapping entry in the Severity Mapped To: drop-down box.

8. Select Yes or No in the Enabled: drop-down box to enable or disable this mapping.

9. Click **OK** to return to the Alarm Mapper screen.

10. To edit, delete, or copy the mapping entries, highlight the row to be changed and click the appropriate button. Click Show Mapping to open the Mapping Details screen. Click Refresh to update the Alarm Mapping screen. (see Figure 6-15).

11. When mapping is complete, click **Apply** and **Close**.

Note: Entering asterisk (*) as a wild card is supported for Condition Type and AID values.

Note: More than one user should not be working with the Alarm Mapping Window at the same time. Be sure to refresh your widow before you start making any changes.

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.

In This Chapter

- Overview
- In This Chapter
- Performance Monitoring
- 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 7-1 and Table 7-1 briefly explain the Performance Monitor main screen dialog box.

Note: The appearance of the Performance Monitor main screen dialog box will vary somewhat from the following figure depending upon the NE that is selected. For instance, more Input Aid channels might be shown, or the Card field might not be present.
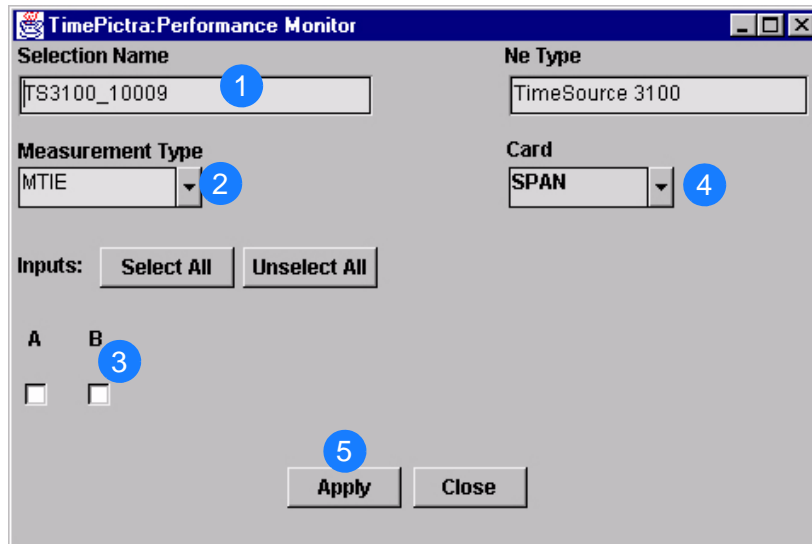
Figure 7-1.   Performance Monitor (Main Screen) Dialog Box

Table 7-1. 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.
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. These dialog boxes are described below.

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 7-2 shows the Performance Monitor Table Plot dialog box displaying MRTIE data. Table 7-2 explains the dialog box.
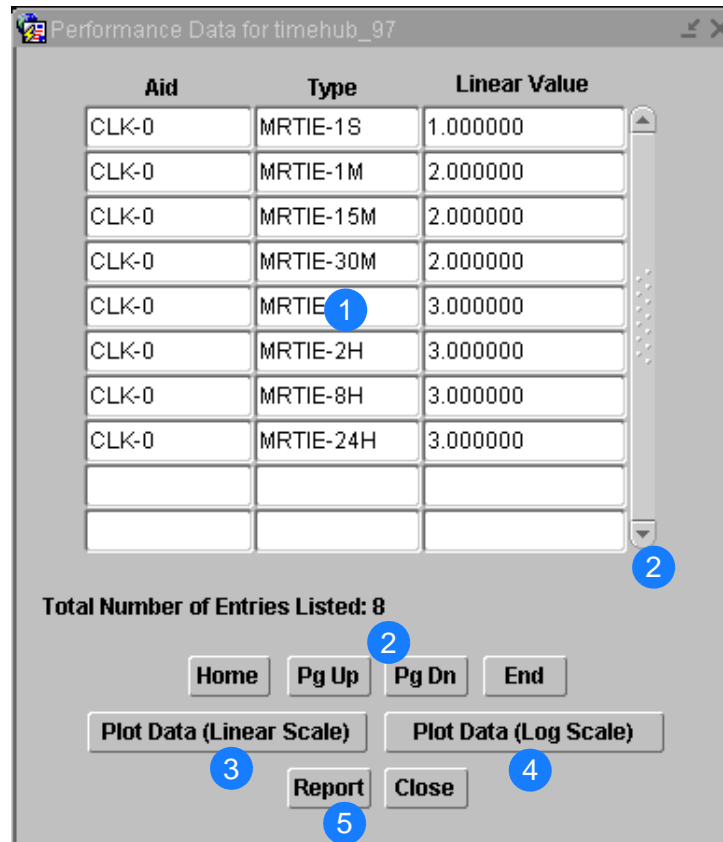
Figure 7-2.   Performance Monitor Table Plot Dialog Box

Table 7-2. 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 Data (Linear Scale) button invokes the Performance Monitor display screen dialog box, in which you can view and print a linear line or column graph of the performance data, and view the data in tabular format. The linear graph can include negative values.

Table 7-2. Performance Monitor Table Plot Dialog Box Description (Continued)

Item	Description
4	Clicking the Plot Data (Log Scale) button invokes the Performance Monitor display screen dialog box. If the measurement type is MTIE, MRTIE, LRMTIE, or TDEV, then a line plot shows the x-axis and the y-axis in logarithmic scale and a column plot shows the x-axis in discrete scale and the y-axis in logarithmic scale.
	If the measurement type is FFOFF, SPRD, or TIE, then a line plot shows the x-axis in logarithmic scale and the y-axis in linear scale and a column plot shows the x-axis in discrete scale and the y-axis in linear scale.
5	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, on page 158 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 7-3 shows the Performance Monitor display screen dialog box with a line graph for an MRTIE measurement. Table 7-3 explains the dialog box.
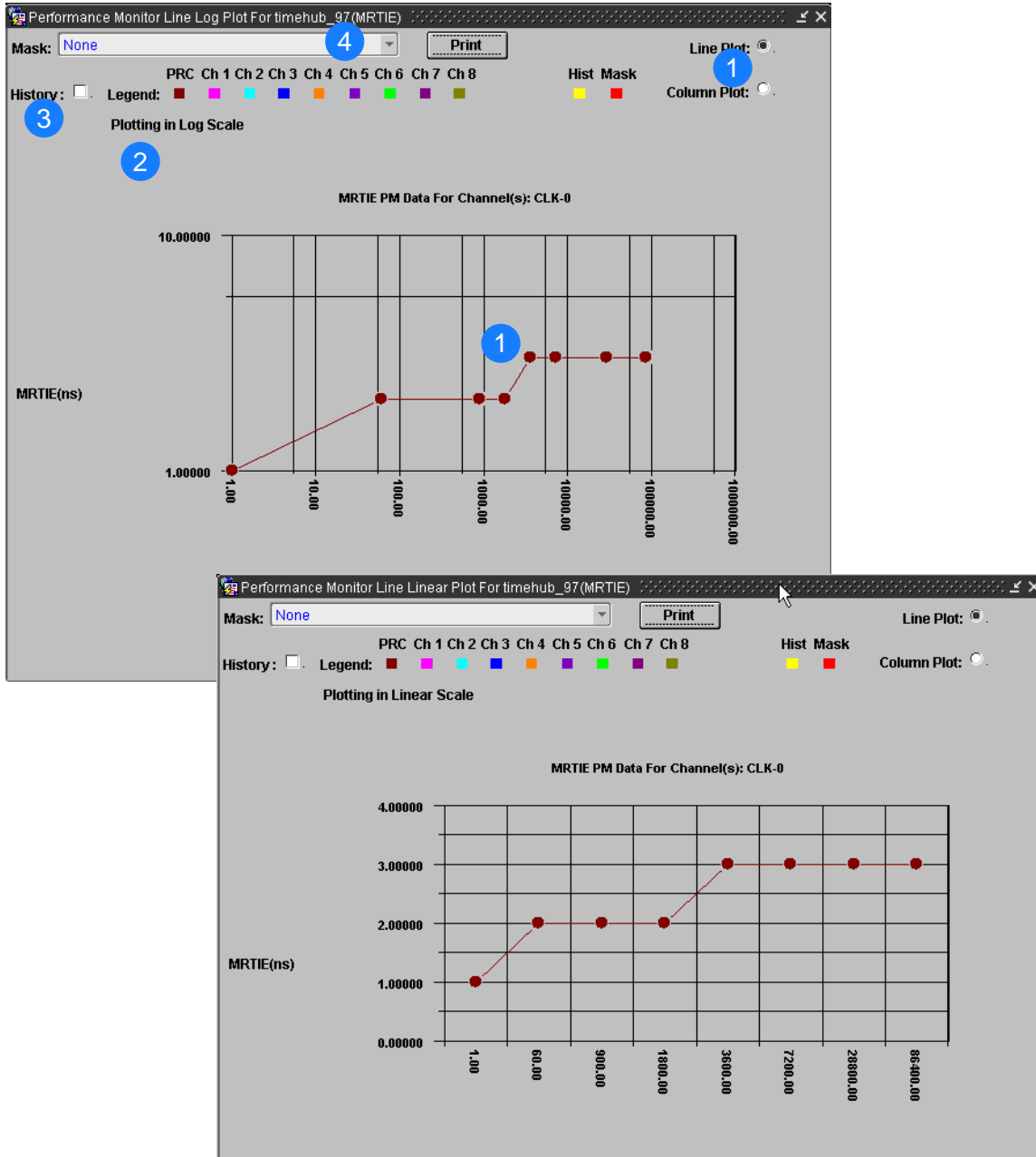
Figure 7-3.   Performance Monitor (Display Screen) Dialog Box – Linear and Log Scales

Table 7-3. 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 7-3. Performance Monitor (Display Screen) Dialog Box Description

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

The following procedure explains how to display a performance measurement.

> **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.

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 All >> selects 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 Linear Data or Plot Log Data 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.

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 7-4 and Table 7-4 briefly explain the Performance Monitor Report Inputs runtime parameters dialog box.
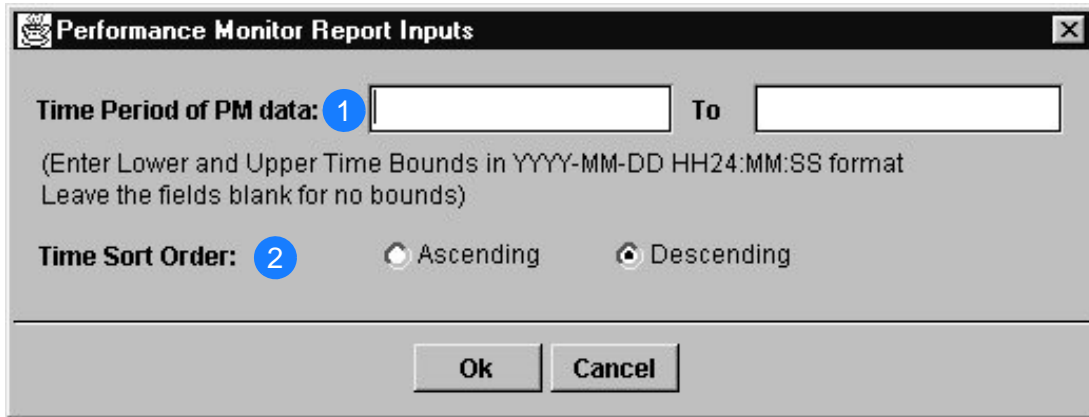
Figure 7-4.   Performance Monitor Report Inputs (Runtime Parameters) Dialog Box

Table 7-4. 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).
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.

The following procedure explains how to create a performance report.

> **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 mea-surements, 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 All >> selects 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.

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.
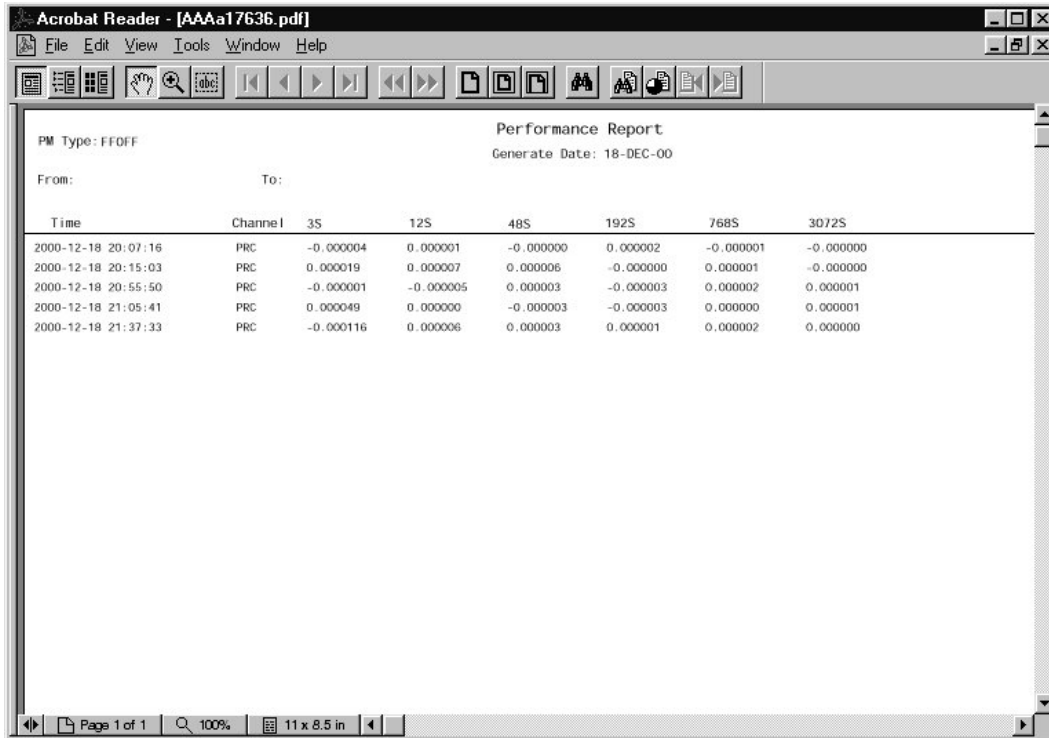
   The report previewer is a separate invocation of the Web browser containing the Acrobat® Reader either as a plug-in to the browser, or as a helper application (separate from the browser). The formatted Performance Report is in PDF (portable document format) and appears similar to the following figure.

   > **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.

```
Acrobat Reader - [AAAa17636.pdf]                                    _ □ ×
File  Edit  View  Tools  Window  Help                               _ 🗗 ×

                              Performance Report
 PM Type: FFOFF               Generate Date: 18-DEC-00

 From:              To:


  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









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Chapter 8 Inventory Management

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

In This Chapter

- Overview
- In This Chapter
- Managing the Inventory Database
- Inventory Reports

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.

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 8-1 and described in Table 8-1.
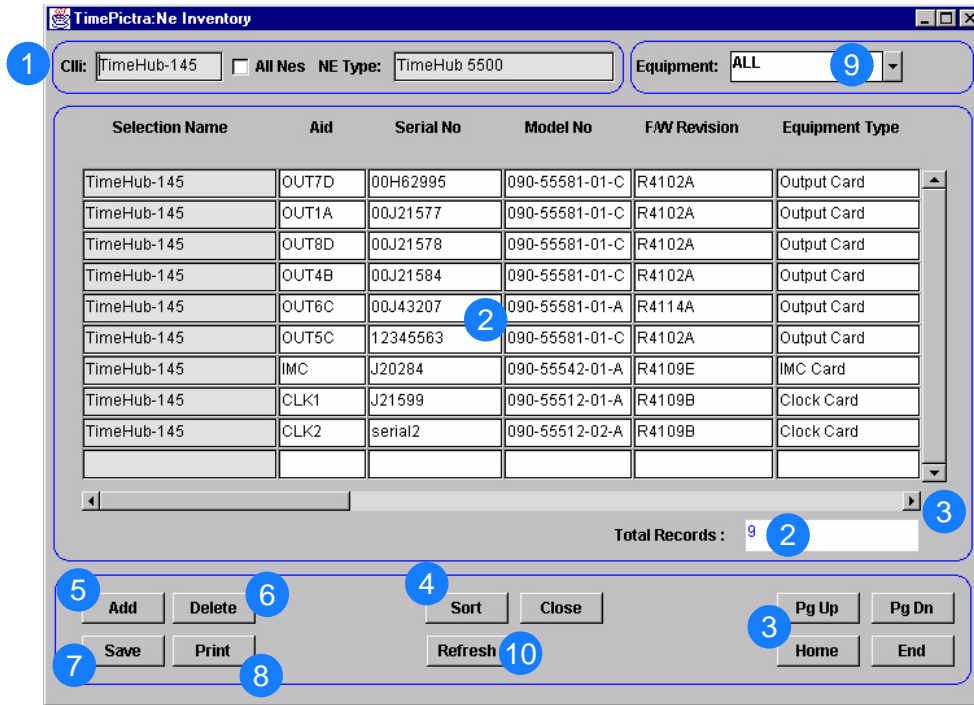
Figure 8-1.   NE Inventory Dialog Box

Table 8-1. NE 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 Modifying the Inventory Database, on page 164 for an explanation of the information provided in the resource listing.

Table 8-1. NE Inventory Dialog Box Description (Continued)

Item	Description
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 Create an Inventory Report, on page 169 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.

Modifying the Inventory Database

Modifying the Inventory database is described in the following procedure.

> **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: Symmetricom recommends 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 8-2 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.

4. Make the appropriate modifications:

Note: Modifications to the inventory database cannot be made if the All NEs check-box is selected.

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.

Table 8-2 is referenced from within the above procedure.

Table 8-2. 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.

Table 8-2. Resource Listing Field Descriptions (Continued)

Field	Description
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.
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.

Note:
  [1] These fields are included only for the TimeHub 5500 NE

Sorting Inventory for Display in the NE Inventory Dialog Box

The software provides a sorting function by the inventory items. The items can be sorted into groupings according to the user's preferences. With TimePictra 3.6, you can also sort on the Selection Name.

The following procedure explains how to sort items for display in the NE Inventory dialog box.

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, as shown in Figure 8-2. Choose the desired sort criteria by selecting the appropriate check-boxes.
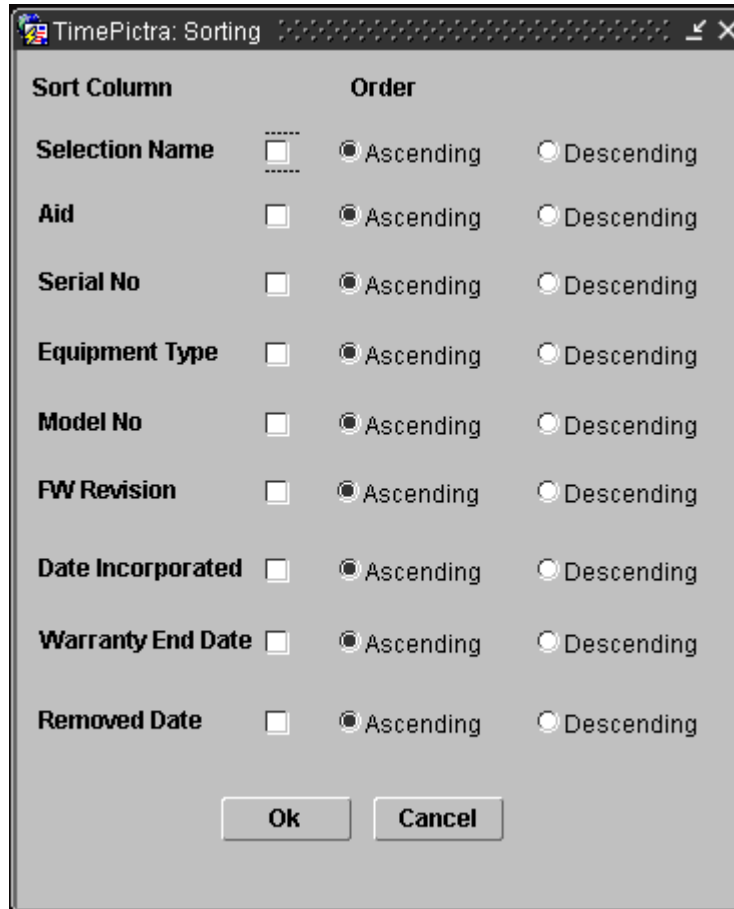
Figure 8-2.   Sorting Dialog Box

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.

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. The following procedure explains how to create an inventory report.

> **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 Sorting Inventory for Display in the NE Inventory Dialog Box, on page 167.

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:
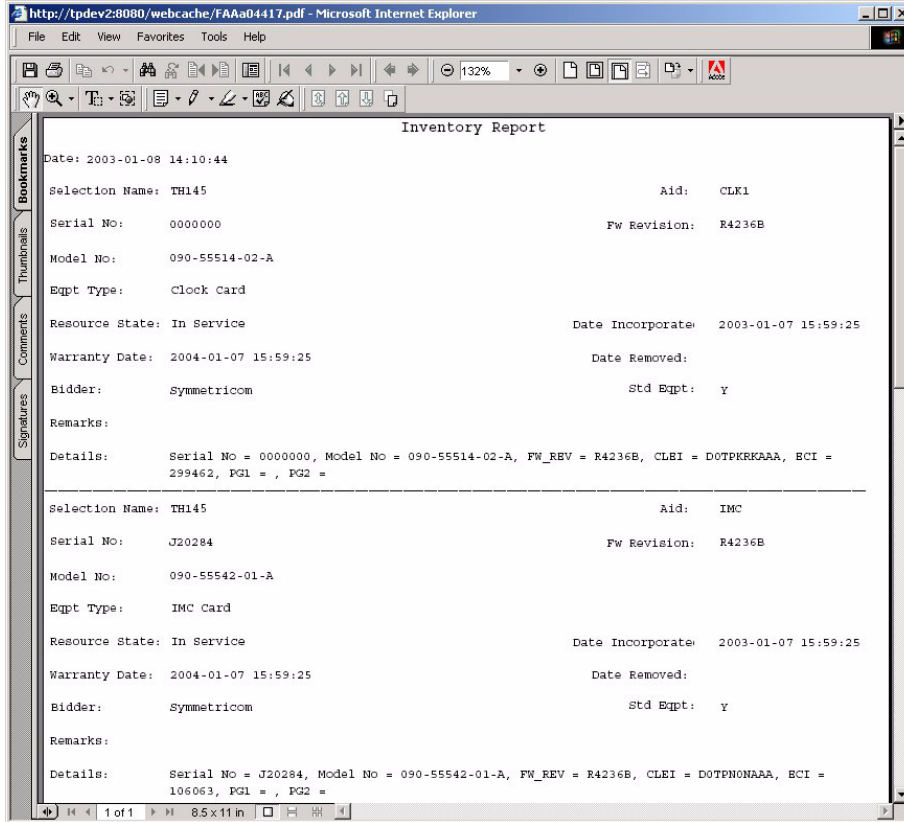
Note: By default, the software displays the Inventory Report, which is generated in PDF format, using the Acrobat® Reader (version 5.0 and above) as a plug-in or helper to the browser. If the Acrobat Reader is not already installed on your client, you can obtain it from Adobe Systems Incorporated.

3. Use the controls of the Acrobat Reader to navigate, save, or print the Inventory Report.

Chapter 9 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.

In This Chapter

- Overview
- In This Chapter
- TimePictra User Administration
- Network Element User Administration
- Management Domains
- Features Available to each User Class

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 added to the TimePictra database by this user.

> **Caution:** Do not attempt to access the TimePictra database directly. Accessing the TimePictra database directly is a violation of Symmetricom's embedded OEM agreement. Tampering with the TimePictra database might place TimePictra in a permanent non-operational state, necessitating a new service order request to Symmetricom Global Services in order to reinstall the entire system.

Each user is assigned a username, password, and user class (also referred to as the "level" or "group"), when they are created by a security-class user. The user class dictates the default level of functionality access that the user has, and a given user's default functionality access can be modified by the creator of the user.

> **Note:** User classes are explained further in Chapter 1, Introduction and General Information.

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.

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 9-1 and Table 9-1 briefly explain the User Administration dialog box:
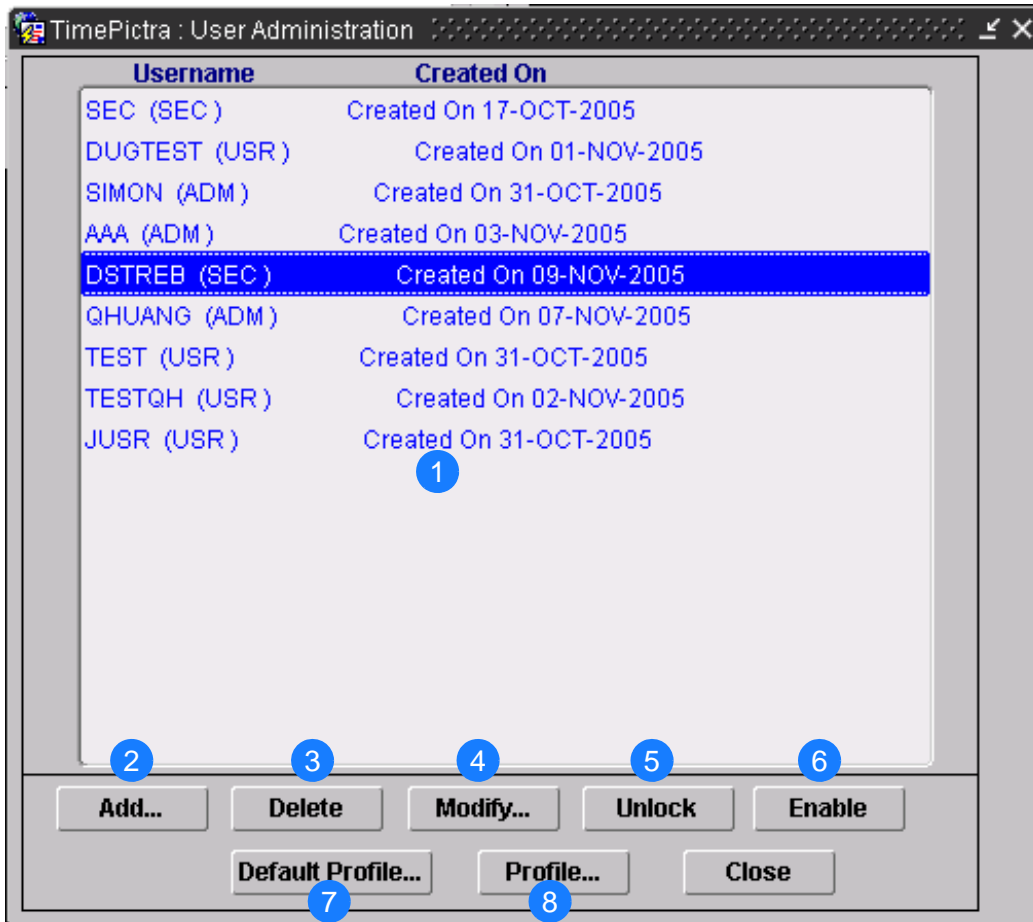
Figure 9-1.   User Administration Dialog Box

Table 9-1. 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 existing users, as well as the date each user was created. The user list that is displayed depends on which user invoked the dialog box: ■ If the user invoking the dialog box is the SEC user, all TimePictra users are displayed. ■ If the user invoking the dialog box is an non-SEC security-class user, all TimePictra users created by that user are displayed.

Table 9-1. User Administration Dialog Box Description (Continued)

Item	Description
2	Clicking the Add button invokes a sub-box into which information for a new TimePictra user can be added.
3	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.
4	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.
5	To Unlock an existing TimePictra user, select the user in the user list area, then click the Unlock button. Only the SEC/SECW user or the user creator can unlock a user who has failed the number of log-in attempts specified in the user profile.
6	To Enable an existing TimePictra user, select the user in the user list area, then click the Enable button. Only the SEC/SECW user or user creator can enable a user.
7	The Default Profile button displays the default User Profile screen. See the section Modifying the Default User Profile, on page 174 for a description of the default parameter values.
8	The Profile button displays the user's Profile. Only the SEC/SECW user can modify the default user profile.

Modifying the Default User Profile

TimePictra 3.6 provides each user account with a number of security-related parameters. To view the default security parameters, click the Default Profile button on the User Administration window. The Default Profile window appears, as shown in Figure 9-2. These values are given to each user account when it is created. Table 9-2 describes the fields in this window. To modify the parameters for each individual user account, highlight the account in the User Administration window and click the Profile... button.

Figure 9-2.   Default User Profile Window

Table 9-2. Default User Profile Dialog Box Description

Item	Description
1	The Password Reuse Max field describes the number of password changes that must occur before a password can be reused.
2	The Password Reuse Time (Days) field describes the number of days that must elapse before a password can be reused.
3	When checked, a user must change the assigned password after logging in to TimePictra for the first time or when the password is changed by an Administrator.
4	The Failed Login Attempts field describes the number of unsuccessful login attempts that cause the account to be locked.
5	The Password Lock Time field describes the length of the lockout due to unsuccessful login attempts. This value can be in hours, minutes, or seconds.
6	The Disable Inactive User field specifies the number of days of inactivity, after which the account becomes disabled.
7	The number of Concurrent Sessions field describes the maximum number of sessions that a user can have active at any one time.

Table 9-2. Default User Profile Dialog Box Description (Continued)

Item	Description
8	The Password Expiration (Days) field specifies the number of days a password is active. If the password is not changed within this period plus the Grace Time, the account is locked.
9	The Password Grace Time (Days) field specifies the number of days *after* the Password Expiration date before the user account is locked. On login, a message appears informing the user that the password will expire in XX days.

Creating (Adding) a System User

Notes:
1. Users of the Security class can perform this procedure.
2. Users that have been added using this procedure will have complete access to all TimePictra features via the TimePictra web interface. Optionally, users can access TimePictra via the Openview Synchronization Map, but this requires that a UNIX account also be added on the TimePictra Server for the user. The procedure to add a UNIX account is optional and only needs to be performed if the user will have the need to access TimePictra via the Openview Synchronization Map. To add a UNIX account, refer to the procedure in Creating a UNIX User on the TimePictra Server, on page 184 at the end of TimePictra User Administration, on page 173, after finishing this procedure.
3. The TimePictra database must be running in order to perform the following task.

The following procedure describes how to create a system user.

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 Under Admin... from the Security menu.

    The User Administration dialog box contains a listing of current TimePictra users in the user list area.

    Note: If the user invoking the dialog box is the SEC user, all TimePictra users are displayed. If the user invoking the dialog box is an non-SEC security-class user, all TimePictra users created by that user are displayed.

2. Click the Add button to invoke the "Add" User Administration dialog box, which appears similar to the following figure:

> **Note:** If the number of TimePictra users that have been created is already at the maximum amount allowed by the TimePictra license, the message "`TimePictra User License Limit has been reached...`" will be shown when the Add button is clicked, and you will not be able to add a new user unless another user is deleted or the License is upgraded. Your system administrator can obtain and install upgrades to the TimePictra license file if necessary.

3. Enter the information shown in Table 9-3 into the User, Full Name, Initials, Group, and Password Expiration fields.

> **Note:** Password expiration applies only to Web users. For X-Windows-based users, HP-UX (UNIX) based password policy management should be used by the system administrator.

4. Click the Enter Password button to invoke the Password Window dialog box, then enter password information into the fields in that dialog box as explained in Table 9-3.

   When a user is created and assigned a password, that user may need to create a new password on the next log-in, depending on the profile setting.

5. If you desire to change the functionality access for the user being created so that his/her access is different from the level of default access defined by the Group that you assigned to the user, go to the procedure in Modifying a User's Functionality Access, on page 183, then return to this procedure and continue with Step 6, on page 177. If you do not desire to change the user's functionality access, skip this step and continue with Step 6, on page 177.

6. Click OK in the "Add" User Administration dialog box.

7. Click OK in the message box that reads User *user_name* and web user *user_name* created successfully (where *user_name* is the name of the user just created).

8. To close the User Administration dialog box, click Close , then click Yes if the question Do you want to exit from User Administration? appears. No other forms will open until you close the User Administration dialog box.

Table 9-3 is referenced from within the above procedure.

Table 9-3. 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 7 upper-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.
Group	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, and Configuration 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.

Modifying System User Information

Notes:
1. Users of the Security class can perform this procedure.
2. The TimePictra database must be running in order to perform the following procedure.

The following procedure explains how to modify system user information.

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 <u>U</u>ser Admin... from the <u>S</u>ecurity menu.

   The User Administration dialog box contains a listing of the current TimePictra users in the user list area.

Note: If the user invoking the dialog box is the SEC user, all TimePictra users are displayed. If the user invoking the dialog box is an non-SEC security-class user, all TimePictra users created by that user are displayed.

2. In the user list area, select the TimePictra user that you wish to modify.

3. Click the Modify button to invoke the User Administration dialog box, which appears similar to the following figure:

4. Modify the user's Full Name, Initials, as necessary in the fields as shown in Table 9-4.

Notes:
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.
A user cannot modify their own initials or user name.

5. If you desire to modify the user's password, click the Change Password button to invoke the Password Window dialog box, then enter password information into the fields in that dialog box as explained in Table 9-4, and click OK.

   If a Security user changes the password of another user, that user may need to create a new password on the next log-in, depending on the profile setting. If a user changes his or her own password, then the new password is required on the next log-in.

6. If you desire to modify the functionality access for the user, go to the procedure Modifying a User's Functionality Access, on page 183, then return to this procedure and continue with Step 7, on page 180. If you do not desire to change the user's functionality access, skip this step and continue with Step 7, on page 180.

7. Click OK in the "Modify" User Administration dialog box.

8. Click Yes for each question `Do you want to change info_field of the user user_name?`

9. Click OK in the confirmation box that follows to dismiss it.

10. To close the User Administration dialog box, click the Close button, then click Yes if the question `Do you want to exit from User Administration?` appears. No other forms will open until you close the User Administration dialog box.

   Table 9-4 is referenced from within the above procedure.

Table 9-4. Modifying 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.
Group	Select the group, if desired. See the Group description in Table 9-3.

Table 9-4. Modifying User Information (Continued)

Field	Description
Password Window (dialog box)	Modify the password, if desired, in the Enter Password for "*user_name*" field and Confirm Password for "*user_name*" fields. The password must contain at least eight characters, one of which is a number or a special character. The alpha characters can be a mixture of upper-case or lower-case characters.
	Notes:
	1. The special character in a password can be any printing non-alphanumeric character, however, it is recommended that shell-interpreted characters such as semicolon, slash, double-quotes, etc., not be used.
	2. 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.
	3. If you enter a password that contains invalid characters or is of an invalid length, the system will issue an invalid password message.

Modifying a User's Profile

Each user that has been added using the procedure in Creating (Adding) a System User, on page 176 has a number of security-related parameters associated with their username. To change the parameters, click the Profile... button in the User Administration window. The parameters are described in Table 9-2.

Deleting a System User

Notes:
1. Users of the Security class can perform this procedure.
2. The TimePictra database must be running in order to perform the following procedure.
3. A logged-in web user cannot be deleted, but a user can be deleted when logged in via OV.

The following procedure explains how to delete a system user.

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 Under Admin... from the Security menu.

The User Administration dialog box contains a listing of the current TimePictra users in the user list area.

Note: If the user invoking the dialog box is the SEC user, all TimePictra users are displayed. If the user invoking the dialog box is an non-SEC security-class user, all TimePictra users created by that user are displayed.

---

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:
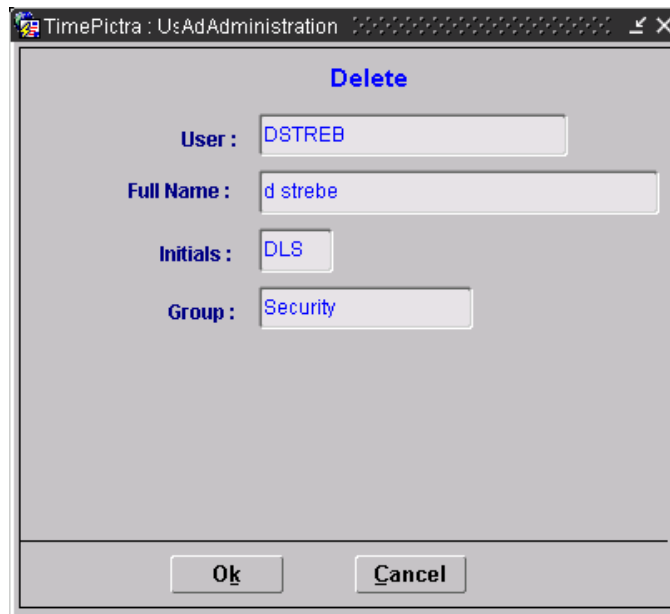
4. Click OK in the ”Delete” User Administration dialog box.

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 and web user have 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 Close, then click Yes if the question `Do you want to exit from User Administration?` appears. No other forms will open until you close the User Administration dialog box.

Modifying a User's Functionality Access

When a TimePictra user is created, he/she is assigned one of three *access levels* - User, Administrator, or Security - which defines the initial default access that the user has to the various TimePictra functions.

The Security-level user who creates a given user has the ability to subsequently modify the functionality access of the user to delete certain functionality from the user's current level of access. A user's functionality access can be modified either when the user is created, or after creation.

Notes:
1. Security-level users cannot grant permissions that they do not have themselves to other users.
2. Security-level users cannot grant permissions that are not included in the access level ("Group") that the user was initially assigned to.

The following procedure explains how to modify a user's functionality access.

1. Perform either the procedure in Creating (Adding) a System User, on page 176 or Modifying System User Information, on page 179 as is appropriate, and when directed to this procedure from that procedure, click the Functionality Access Matrix button in the User Administration dialog box.

   Clicking the Functionality Access Matrix button invokes the Functionality Matrix dialog box, which appears similar to Figure 9-3. Note that the user's name and group, as well as the user currently logged in, appear in the dialog box.
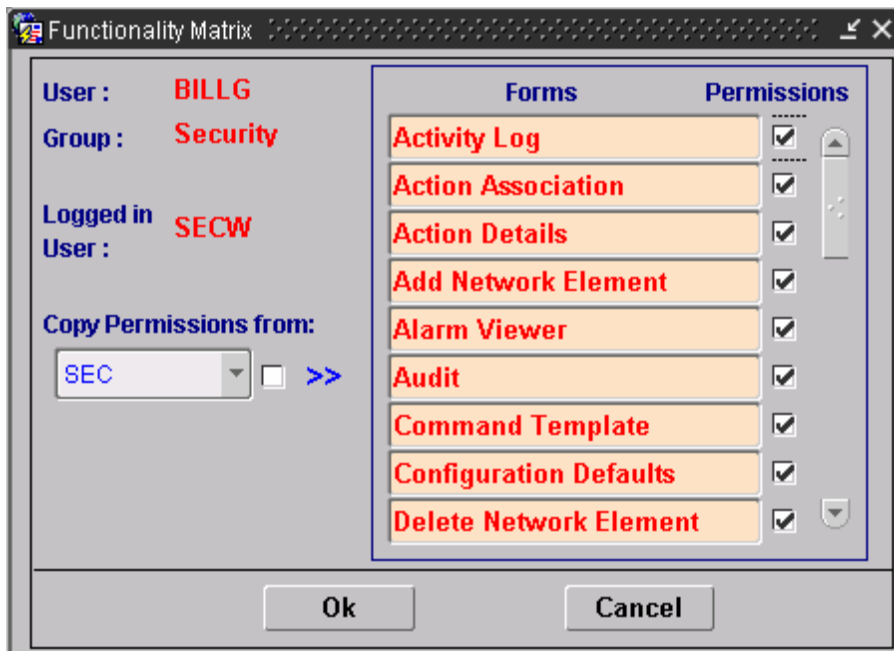
Figure 9-3.   Functionality Matrix Dialog Box

2. Perform any of the following actions:

– To copy an access profile from one of the other users that have created by the logged in user, choose the name of the user whose access profile you wish to copy in the Copy Permissions From drop-down list box, then select the check-box that is adjacent to that list box.

– To add access to certain forms, select the check-boxes that are adjacent to the forms you wish to add.

Note: You cannot add access to forms that you do not have access to yourself, or that are not included in the access level ("Group") that was initially assigned to the user.

– To remove access to certain forms, deselect the check-boxes that are adjacent to the forms for which you wish to remove access.

3. Click the OK button to apply the changes to the user's access profile and close the dialog box, or click the Cancel button to cancel all changes that were made since the dialog box was opened.

4. Return to the procedure that directed you to this procedure.

Creating a UNIX User on the TimePictra Server

Users that have been added using the procedure in Creating (Adding) a System User, on page 176 can access TimePictra via the web interface. Optionally, users can access TimePictra via the Openview Synchronization Map, but this requires that a UNIX account also be added on the TimePictra Server for the user. This procedure explains how to add a UNIX account.

Note: This procedure is completely optional and only needs to be performed if the user will need to access TimePictra via the Openview Synchronization Map. Users that have been added using the procedure to Creating (Adding) a System User, on page 176 have full access to all TimePictra features via the web interface.

---

1. Start a shell with user root.

2. Enter the following command at # prompt to start a session for the System Administration Manager utility:

```
sam
```

3. In the following menu option select Accounts for Users and Groups.

4. In the subsequent menu option select Users.

5. In the subsequent menu option click on Action from the main menu and select ADD...

6. 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.)

7. Enter the password for the user and then confirm it to complete the creation process.

8. Exit out of sam.

9. Start a shell for this new user created in the previous step.

10. 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).

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 9-4 shows and Table 9-5 describes the NE User Administration dialog box.
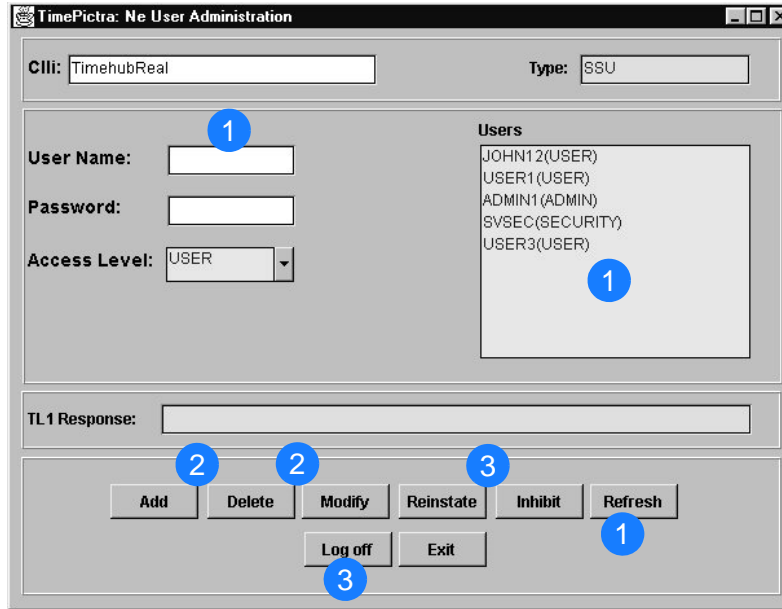
Figure 9-4.   NE User Administration Dialog Box

Table 9-5. 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.
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.

Table 9-5. NE User Administration Dialog Box Description (Continued)

Item	Description
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.

Creating a User on a NE

The following procedure explains how to create a User on an NE.

> **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.

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.

Deleting a User from a NE

The following procedure explains how to delete a User from an NE.

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.

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"

Changing a NE User's Access Level and Password

The following procedure explains how to change a user's access level and password.

> **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.

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 the procedure in Creating a User on a NE, on page 187.

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.

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

Inhibiting an NE User from Future Log-Ins

The following procedure explains how to suspend a user's permission to access an NE without deleting that user from the NE.

> **Notes:**
> 1. Users of the Security class can perform this procedure.
> 2. This functionality is not available for all NE types.

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.

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.

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.

Management Domains

Before User, Administrator, or Security class users 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.

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.

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 9-5 and Table 9-6 briefly explain the Management Domains dialog box:
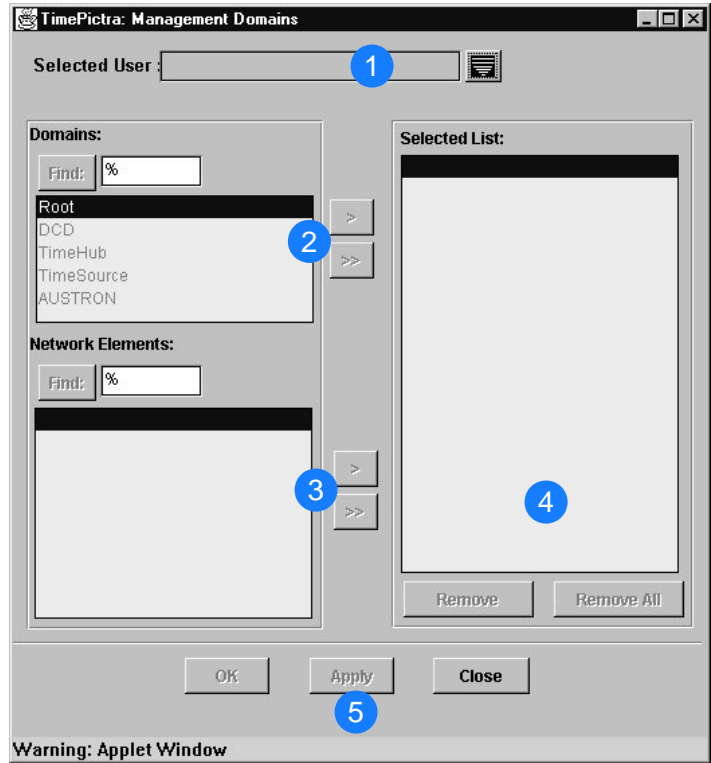
Figure 9-5.   Management Domains Dialog Box

Table 9-6. 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.
	The list of users that can be selected in this field depends on which user invoked the dialog box:
	■ If the user invoking the dialog box is the SEC user, all TimePictra users are listed.
	■ If the user invoking the dialog box is an non-SEC security-class user, all TimePictra users created by that user are listed.
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.
	Note: If the list is long, use the find function (Find: button and associated entry field) to search for a specific domain.

Table 9-6. Management Domains Dialog Box Description (Continued)

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.

Creating or Modifying 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.

The following procedure explains how to create or modify a management domain.

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.

    Note: If the user invoking the dialog box is the SEC user, all TimePictra users are listed in the sub-box. If the user invoking the dialog box is an non-SEC security-class user, all TimePictra users created by that user are listed in the sub-box.

    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.

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.

Management Domain Example

For this example, consider a synchronization network with the topology structure shown in Figure 9-6.
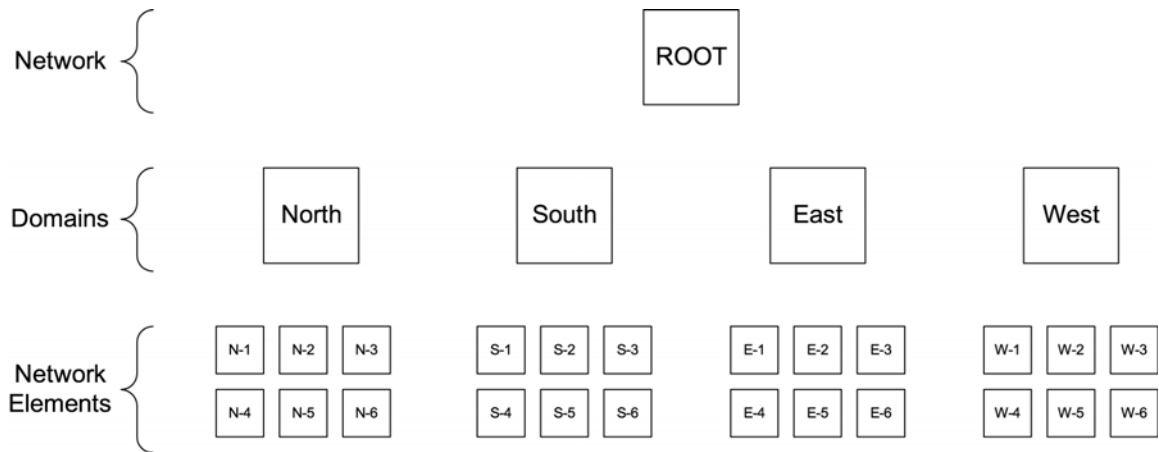
Figure 9-6.   Management Domain Example

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 9-7. The process shown in the "Process" column of the table can be used to create the management domains.

Table 9-7. 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.
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 9-7 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

The following describes the TimePictra features and functions that are available to the various user classes as the *default access profile*.

> **Notes:**
> 1. The security-level user that creates a given user has the capability to modify that user's access profile. Refer to Modifying a User's Functionality Access, on page 183 for more information.
> 2. If a user's access profile is modified to deny access to given TimePictra functions, the associated menu items and shortcut icons will not be shown as disabled, but if the user attempts to access any of them, a message will appear stating that access is denied.

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
  - Sub-Network Mgmt...
  - Add NE...
  - Delete NE...
- 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**.

- A<u>u</u>toAction
- Pass<u>T</u>hru
- <u>A</u>dmin
- <u>C</u>onfig
  - <u>M</u>odify Configuration...
  - <u>F</u>irmware Download...
- <u>S</u>ecurity
  - <u>N</u>E User Admin...
  - <u>M</u>anagement Domain...
- <u>D</u>efaults
  - Command <u>T</u>emplate...
- <u>M</u>isc
  - <u>F</u>orce Unlock NE
  - Fo<u>r</u>ced Alarm Sync

Chapter 10 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.

In This Chapter

- Overview
- In This Chapter
- Viewing or Modifying the Current Configuration of NEs
- Firmware Upgrades
- Sync Trail Management

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.

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 10-1, 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 10-1 explains the dialog box.
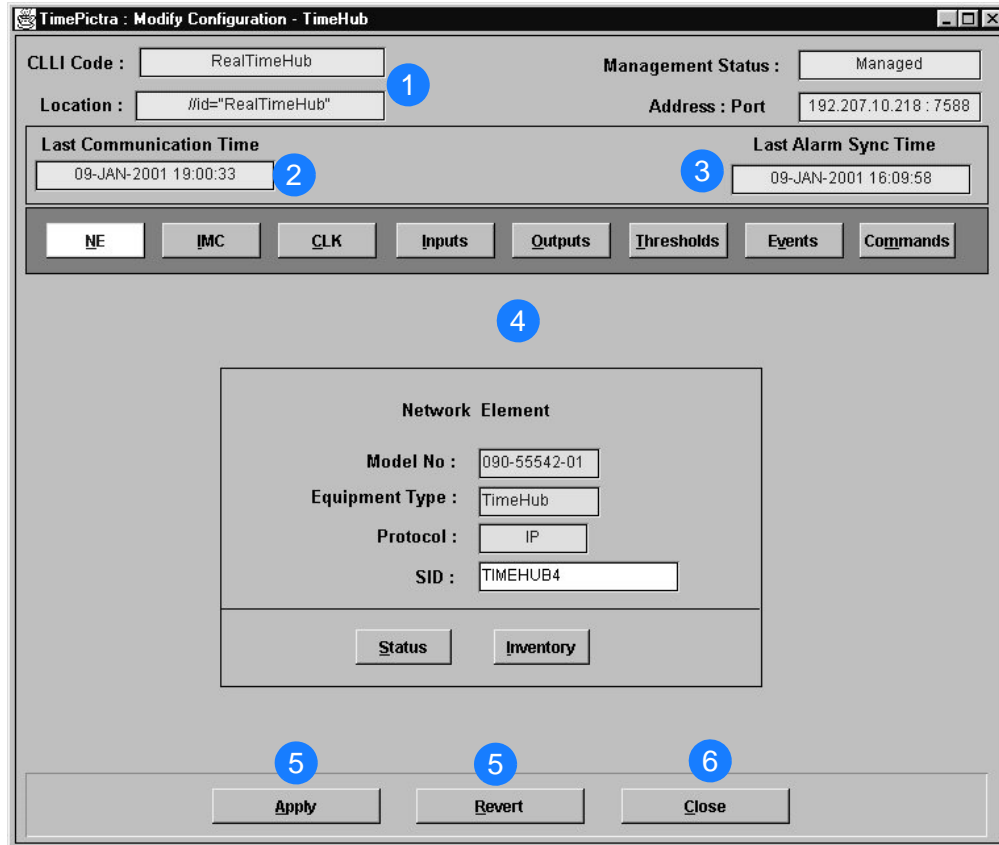
Figure 10-1.   Modify Configuration Dialog Box

Table 10-1. 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.

Table 10-1. Modify Configuration Dialog Box Description (Continued)

Item	Description
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.

The following procedure explains how to view the current configuration settings of an NE.

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 <u>V</u>iew Configuration... from the <u>C</u>onfig 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.

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.

The following procedure explains how to modify the current configuration settings of an NE.

> **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.

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 10-2 and Table 10-2 briefly explain the Firmware Download dialog box.
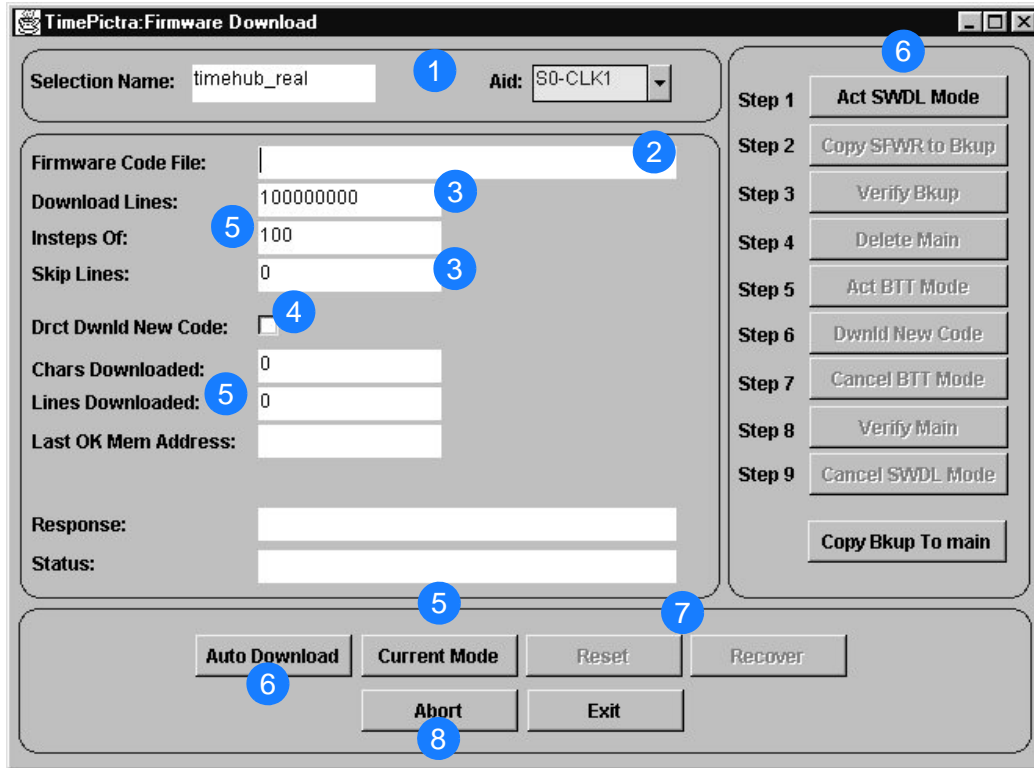
Figure 10-2.   Firmware Download Dialog Box

Table 10-2. 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 10-2. Firmware Download Dialog Box Description (Continued)

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 10-2. Firmware Download Dialog Box Description (Continued)

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 10-3 and Table 10-3 briefly explain the main Sync Trail dialog box.
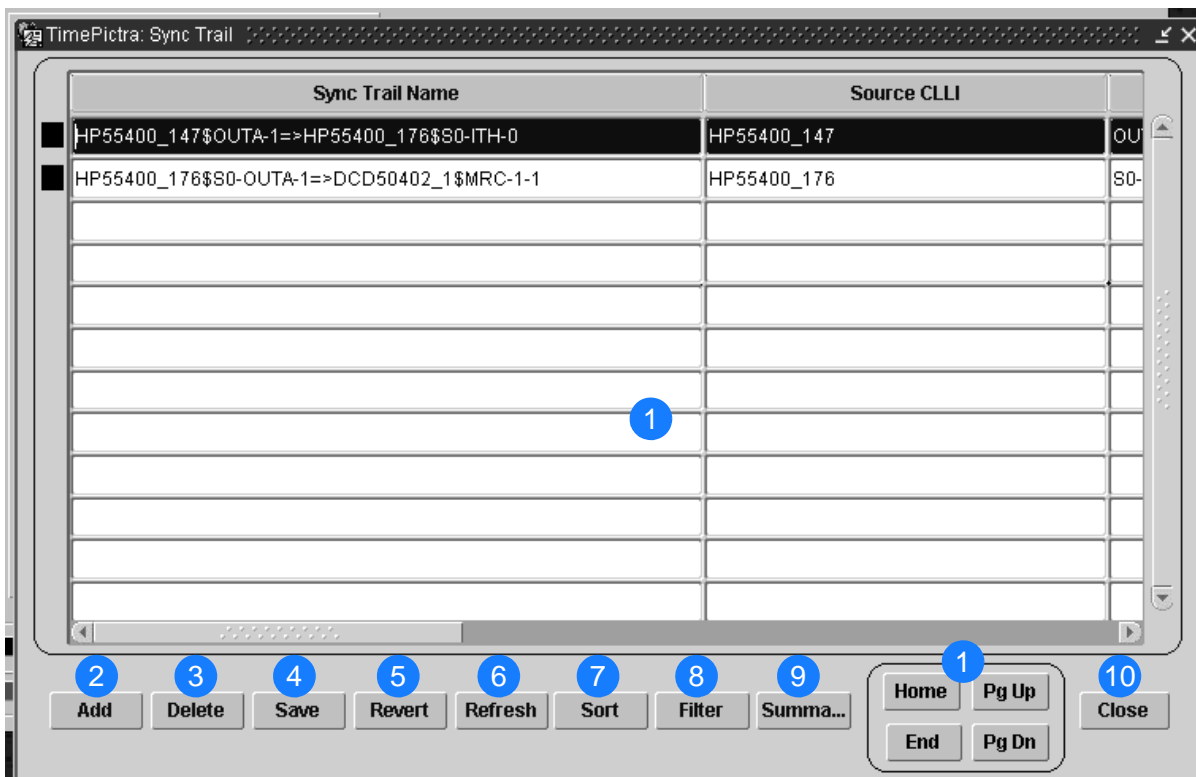
Figure 10-3.   Sync Trail Dialog Box

Table 10-3. 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.
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.

Table 10-3. Sync Trail Dialog Box Description (Continued)

Item	Description
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

The following procedure explains how to open the Sync Trail dialog box.

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 you click on a sync trail record in the main Sync Trail dialog box, the background color of the record depicts the sync trail's severity. You 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.

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 10-4 shows the ne_name Summary dialog box when an NE with the name HP55400_147 is selected, and Table 10-4 briefly explains the ne_name Summary dialog box.
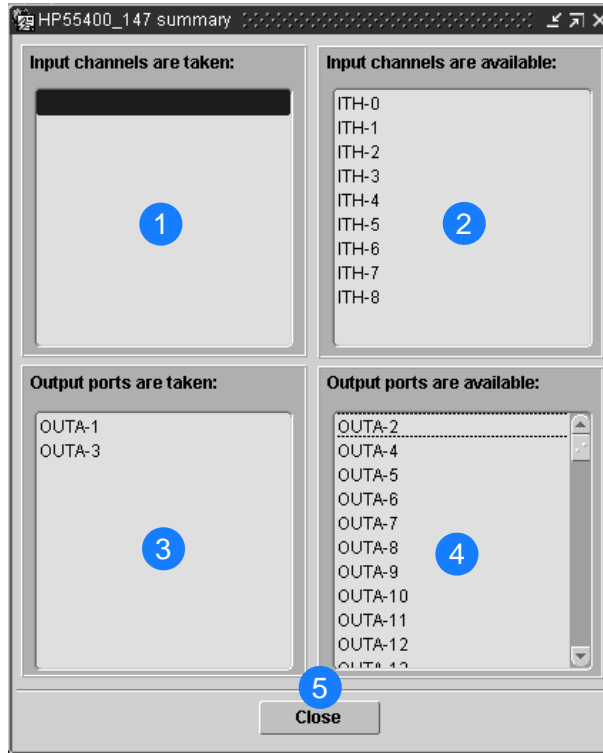
Figure 10-4.   ne_name Summary Dialog Box

Table 10-4. 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 10-5 and Table 10-5 briefly explain the Sync Trail Sorting Criteria dialog box.
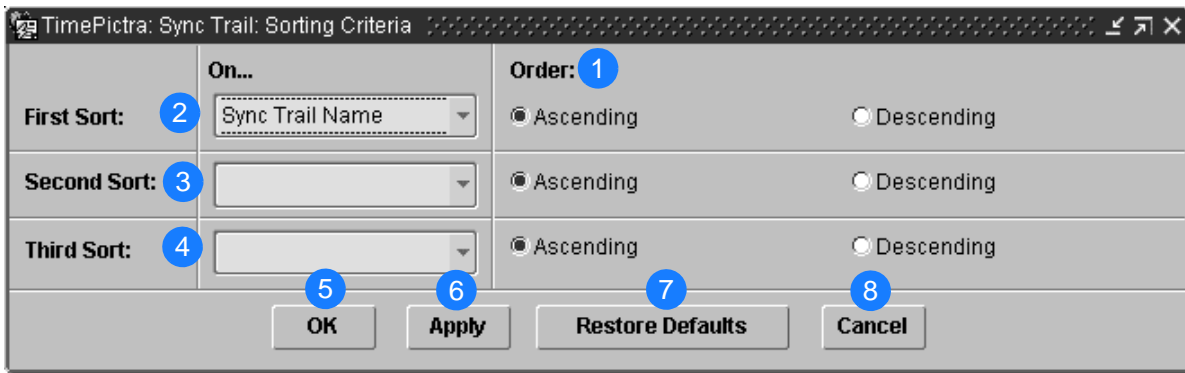
Figure 10-5.   Sync Trail Sorting Criteria Dialog Box

Table 10-5. 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.
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 10-6 and Table 10-6 briefly explain the Sync Trail Network Element Filter dialog box.
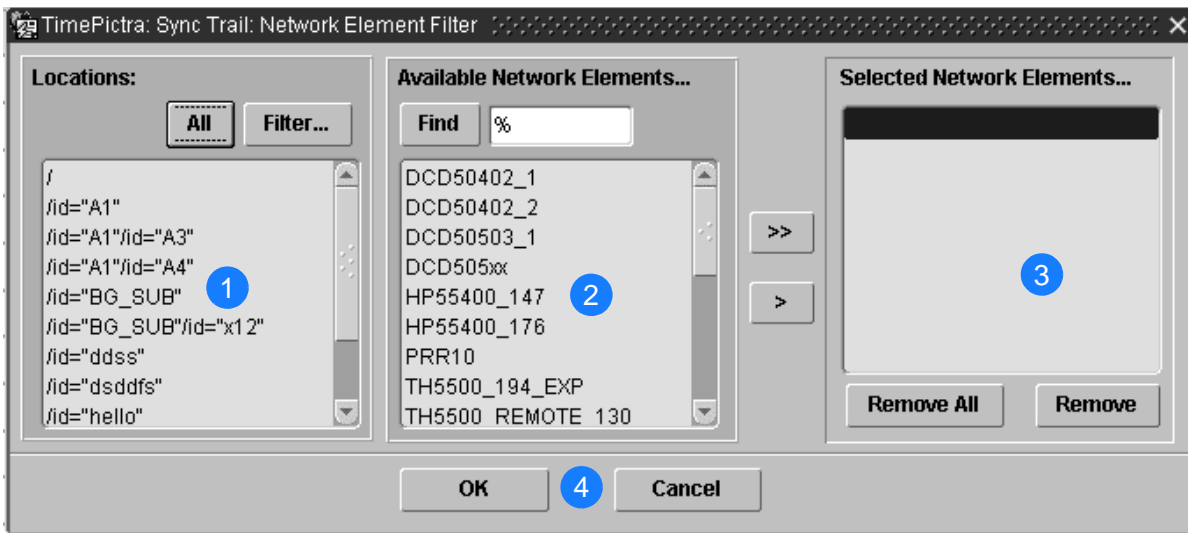
Figure 10-6.   Sync Trail Network Element Filter Dialog Box

Table 10-6. 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.

Table 10-6. Sync Trail Network Element Filter Dialog Box Description (Continued)

Item	Description
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.

The following procedure explains how to use the sync trail filtering feature.

> **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 the procedure in Opening the main Sync Trail Dialog Box, on page 211, 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

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.

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 trail; it is generated by the system automatically by clicking the Get button. The Get button remains disabled until the required fields are populated.

Figure 10-7 and Table 10-7 briefly explain the Add Sync Trail dialog box.

Figure 10-7.   Add Sync Trail Dialog Box

Table 10-7. 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.

The following procedure explains how to add a sync trail.

> **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 the procedure in Opening the main Sync Trail Dialog Box, on page 211 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:
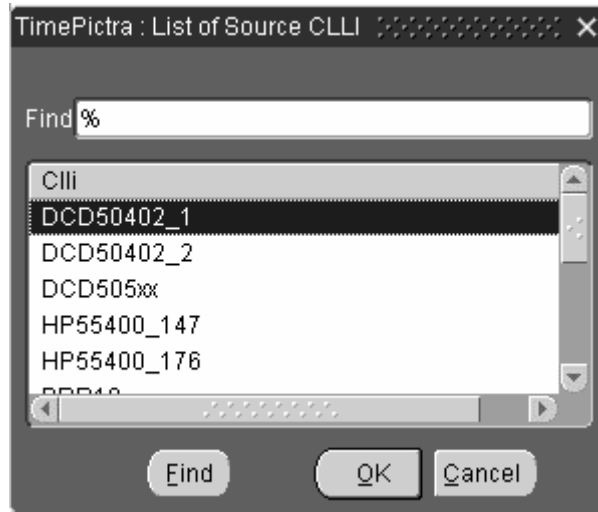
The sub-box displays the CLLI for those NEs that are in the user's management domain. In the sub-box, the user can find the CLLI that will be the source of the sync trail, then click the OK button to confirm the selection or the Cancel button to cancel the selection.

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.

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.

> **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

The following procedure explains how to delete a sync trail.

> **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 the procedure in 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.

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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.

Chapter 11 Default 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.

In this chapter

- Overview
- In This Chapter
- Managing Default Configurations
- Audit OperationCommand Template

Overview

The TimePictra Software provides the ability to create and store a database of default configurations.

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 NEs.

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 11-1 and Table 11-1 briefly explain the Configuration Defaults (main screen) dialog box.
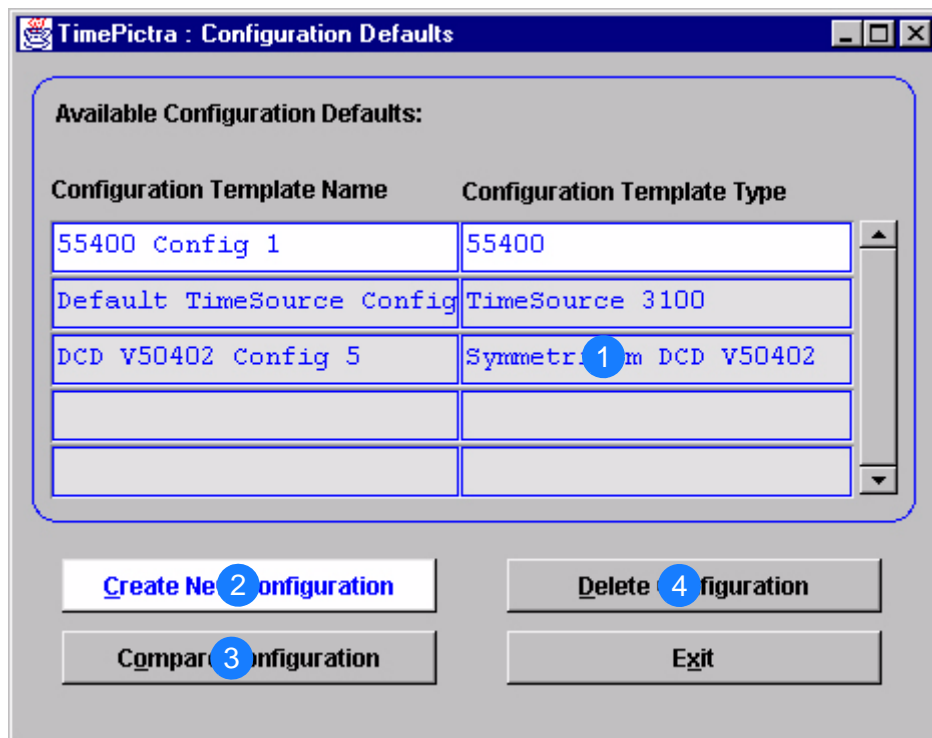
Figure 11-1.   Configuration Defaults (main screen) Dialog Box

Table 11-1. 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 11-2 and Table 11-2 briefly explain the Create Configuration dialog box.
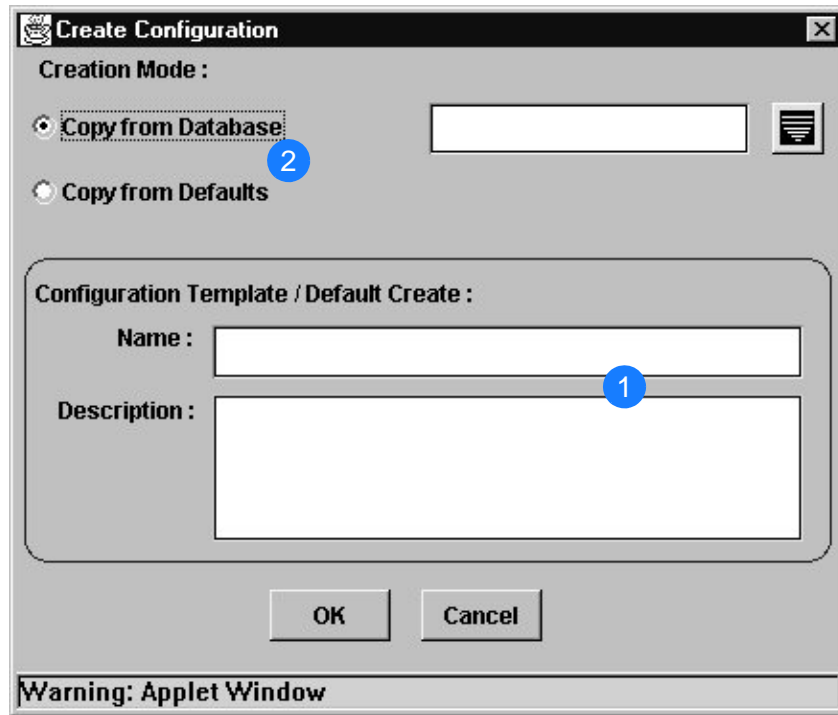
Figure 11-2.   Create Configuration Dialog Box

Table 11-2. 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.

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 11-3 and Table 11-3 briefly explain the Select Network Element dialog box.
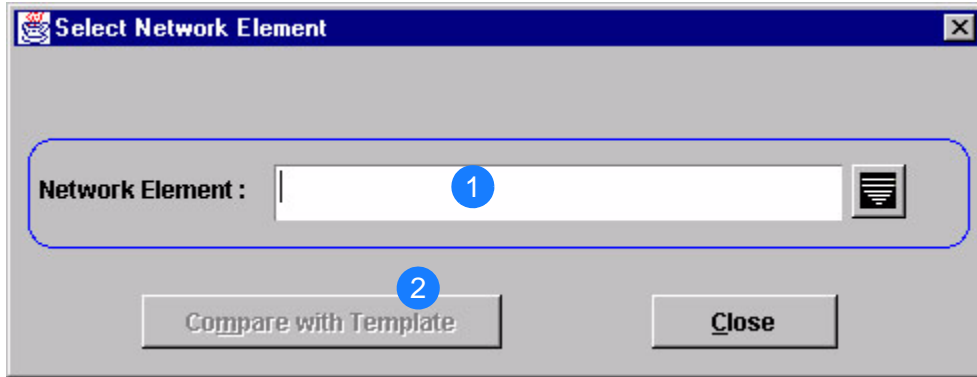
Figure 11-3.   Select Network Element Dialog Box

Table 11-3. 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 the following procedure.

> **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, 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.

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6. Click OK, then click Yes when the question Do you want to Create Configuration? appears, to create the configuration default.

7. Click Exit 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?.

Perform a Compare Operation

Performing a configuration compare operation is described in the following procedure.

> **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.

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:
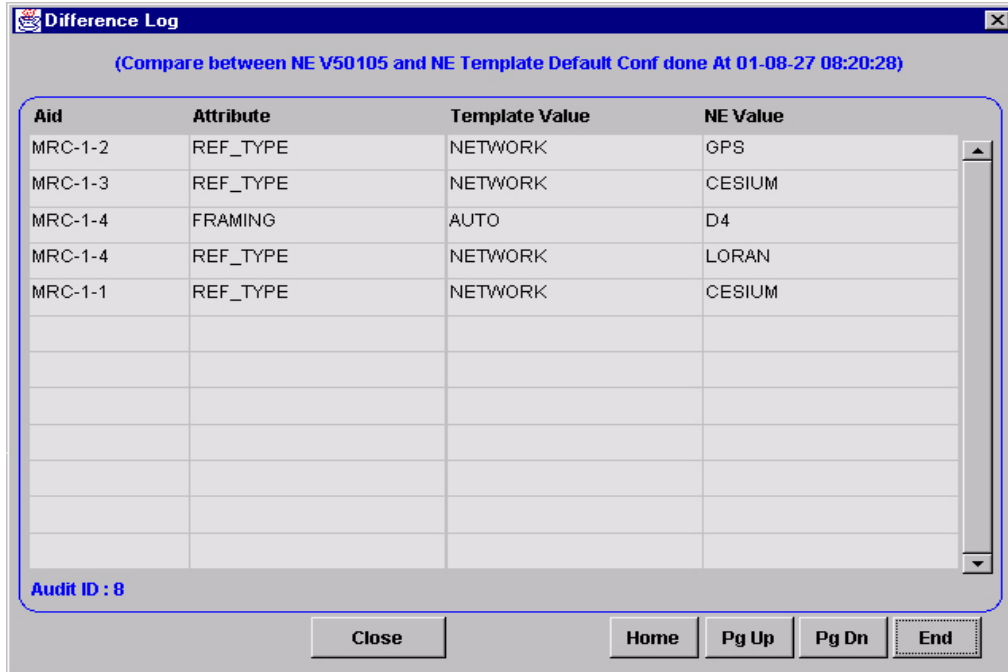
Any configuration differences between the NE's configuration as stored in the TimePictra database and the selected configuration template are displayed in the Difference Log. If the difference information exceeds what can be displayed in the display area of the Difference Log, use the Home, Pg Up, Pg Dn, and End buttons as well as the vertical scroll bar to view it.

> **Note:** A compare operation compares and reports NE attribute inconsistencies between the selected NE and template only. Inconsistencies in the general Remarks fields are not reported.

6. Click Close in the Difference Log to close it.

7. Click Exit 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?.

Delete an Existing Configuration Default

Deleting a Configuration Default is described in the following procedure.

> **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 <u>D</u>efaults... from the <u>D</u>efaults 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 Exit 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?.

Audit Operation

Direct Audits help the user 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 NE and compares it to its stored values in the database.

Performing a configuration audit operation is described in the following procedure.

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 <u>A</u>udit... from the <u>D</u>efaults menu.

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 Close in the Direct Audit Form to close it, then click Yes to the question Do you want to exit from Direct Audit?.

Note: The TimePictra Audit feature does not detect users created in the NE itself and who are not stored or modeled within the TimePictra application. Hence, the Audit feature will not detect users created or deleted in the NE itself. These are users within the NE, not the TimePictra application users.

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 screen similar to the one shown in Figure 11-4:
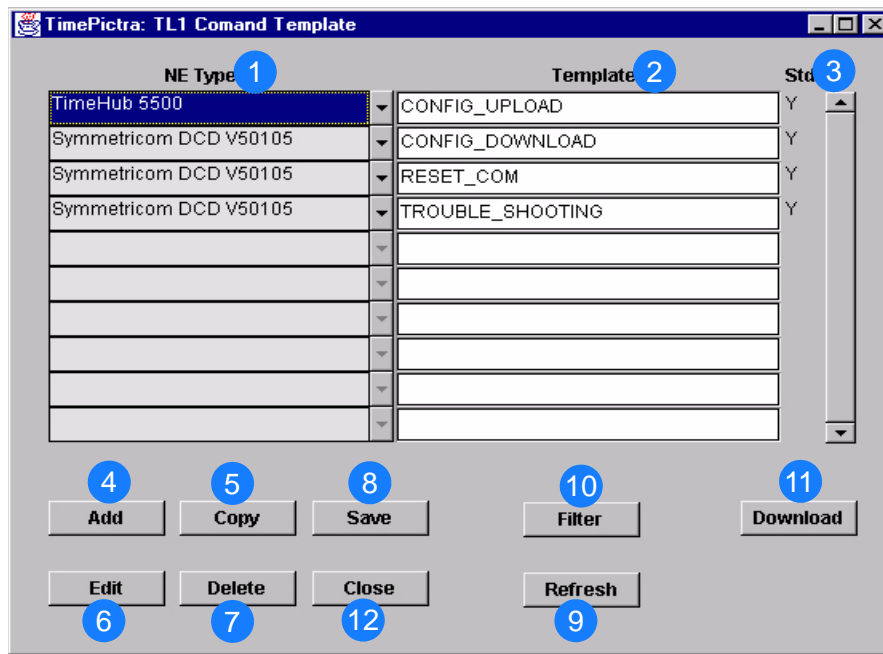
Figure 11-4.   Command Template (Main Screen) Dialog Box

Table 11-4. 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.

Table 11-4. Command Template (Main Screen) Dialog Box Description (Continued)

Item	Description
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.

Adding a New Template

The procedure to add a new template is described in the following procedure.

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.

Adding a Copy of an Existing Template

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

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.

   The selected NE Type is displayed in the top field, thus filtering the list of Source Template that would be available.

3. 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.

4. Enter the "new" name of the template in the Target Template field.

   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.

5. Click OK to validate the selection made on the screen and return to the Command Template Main Screen.

6. Click Cancel to discard the selection made by the user and return back to the Command Template Main Screen.

Editing a TL1 Command in the Template

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

1. Click the Edit button on the Command Template (main form) Dialog box to display the following form.

```
┌──────────────────────────────────────────────────────────────────┐
│ ▓ TimePictra: TI1 Commands                            _ □ ✕        │
│                                                                    │
│  Template:  CONFIG_UPLOAD                                          │
│                                                                    │
│   Sequence          Command              Variable(Optional)        │
│  ┌─┐┌──────────────────────────────────┐┌───────────────────┐ ▲   │
│  │1││RTRV-HDR:::SEC;                    ││                   │     │
│  ├─┤├──────────────────────────────────┤├───────────────────┤     │
│  │2││RTRV-NETYPE-ALL:::Sec;            ││                   │     │
│  ├─┤├──────────────────────────────────┤├───────────────────┤     │
│  │3││RTRV-EQPT::IMC:Sec:::PARAMETER=LCLECHO ││              │     │
│  ├─┤├──────────────────────────────────┤├───────────────────┤     │
│  │4││RTRV-EQPT::CLK:Sec:::PARAMETER=BLDLMT&││              │     │
│  ├─┤├──────────────────────────────────┤├───────────────────┤     │
│  │5││RTRV-EQPT::CLK:Sec:::PARAMETER=PIRANGE&││             │     │
│  ├─┤├──────────────────────────────────┤├───────────────────┤     │
│  │6││RTRV-EQPT::CLK:Sec:::PARAMETER=TRKMODE││              │     │
│  ├─┤├──────────────────────────────────┤├───────────────────┤     │
│  │7││RTRV-EQPT::CLK:Sec:::PARAMETER=SPRD-768││             │     │
│  ├─┤├──────────────────────────────────┤├───────────────────┤     │
│  │8││RTRV-EQPT::OUTA:Sec:::PARAMETER=AIS&HLD││            │ ▼   │
│  └─┘└──────────────────────────────────┘└───────────────────┘     │
│                                                                    │
│  ┌────────┐  ┌────────┐      ┌──────────┐      ┌────────┐          │
│  │  Add   │  │ Delete │      │ Download │      │ Pg Up  │          │
│  └────────┘  └────────┘      └──────────┘      └────────┘          │
│  ┌────────┐  ┌────────┐                        ┌────────┐          │
│  │  Save  │  │ Close  │                        │ Pg Dn  │          │
│  └────────┘  └────────┘                        └────────┘          │
└──────────────────────────────────────────────────────────────────┘
```

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 variables x, y and n, which can be used in the Commands column, that are interpreted by the TimePictra when downloading on NE. They can point to range of values using "-" in between (e.g. 1-5), or specific values 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 are interpreted separately. These variables are substituted in the command to generate multiple TL1 commands, for example ENT-EQPT::TO-x:CTAG; x=1-3 is interpreted as three commands:
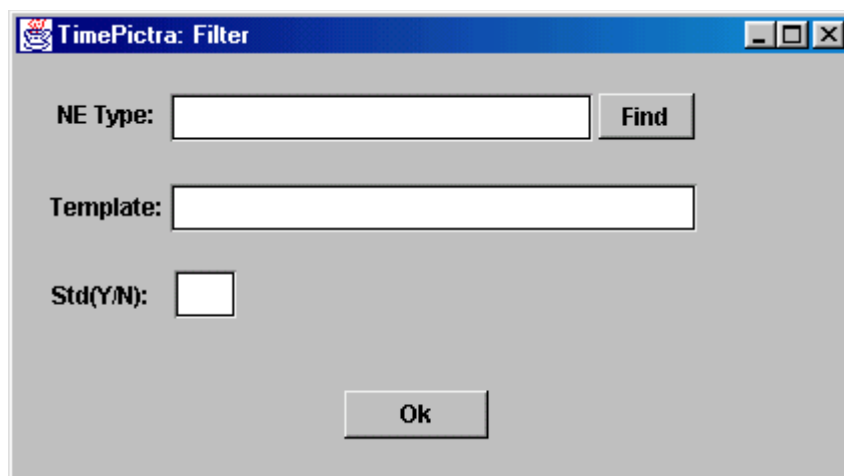
```
1) ENT-EQPT::TO-1:CTAG;
2) ENT-EQPT::TO-2:CTAG;
3) ENT-EQPT::TO-3:CTAG;
```

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.

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 displays 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 closes the form and display the Command Template Main Form.

Filtering the View on the Command Template (Main Form)

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

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 displays another form where a specific NE Type can be selected. Once selected only the template for this NE Type would be shown.

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 helps filter among the standard and non-standard Templates.

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 the following procedure.

1. Select a Template on the main form and click Download; this button is also accessible on the Edit form. This displays 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.

3. Run – This runs 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 – Closes 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 checks 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 changes the time interval for the timeout. Clicking on this displays the following form:

Chapter 12 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.

In This Chapter

- Overview
- In This Chapter
- Action Details
- Action Association

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.
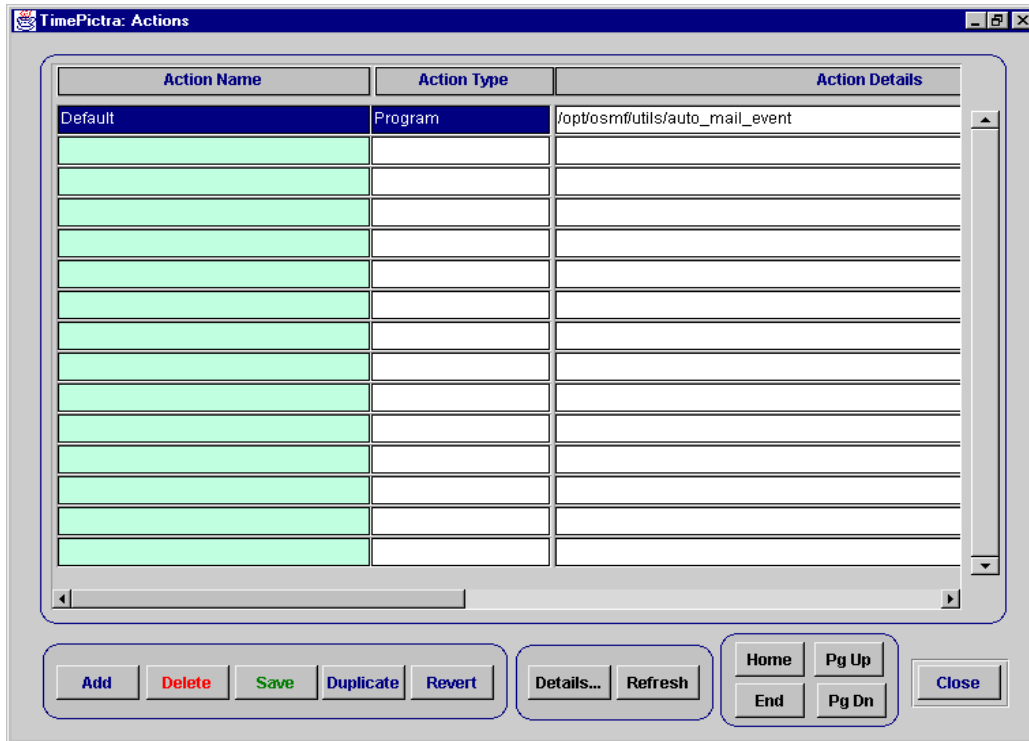
Figure 12-1.   Actions Dialog Box

The following procedure explains how to use the Actions dialog box.

1. Select an Action Name.

2. Click the Details button. A window with all of the action's configurable information is displayed. Each field is described in detail below:
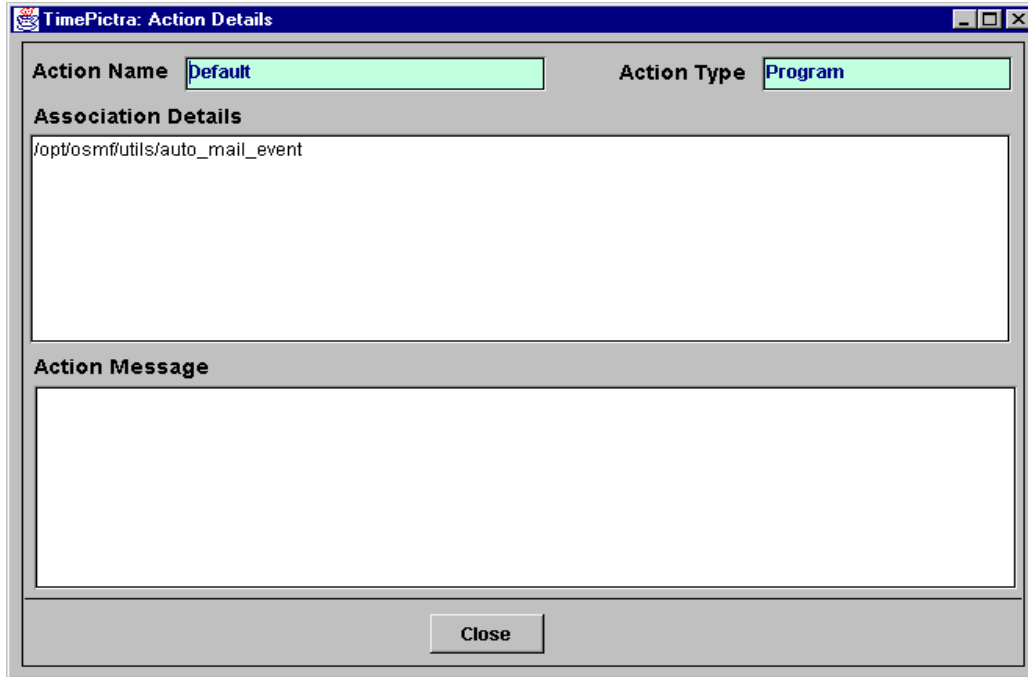
Action Name: This field holds a user-defined name for an action. The name can be up to thirty characters, and will be associated with the shell command in the Action Details field.

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.
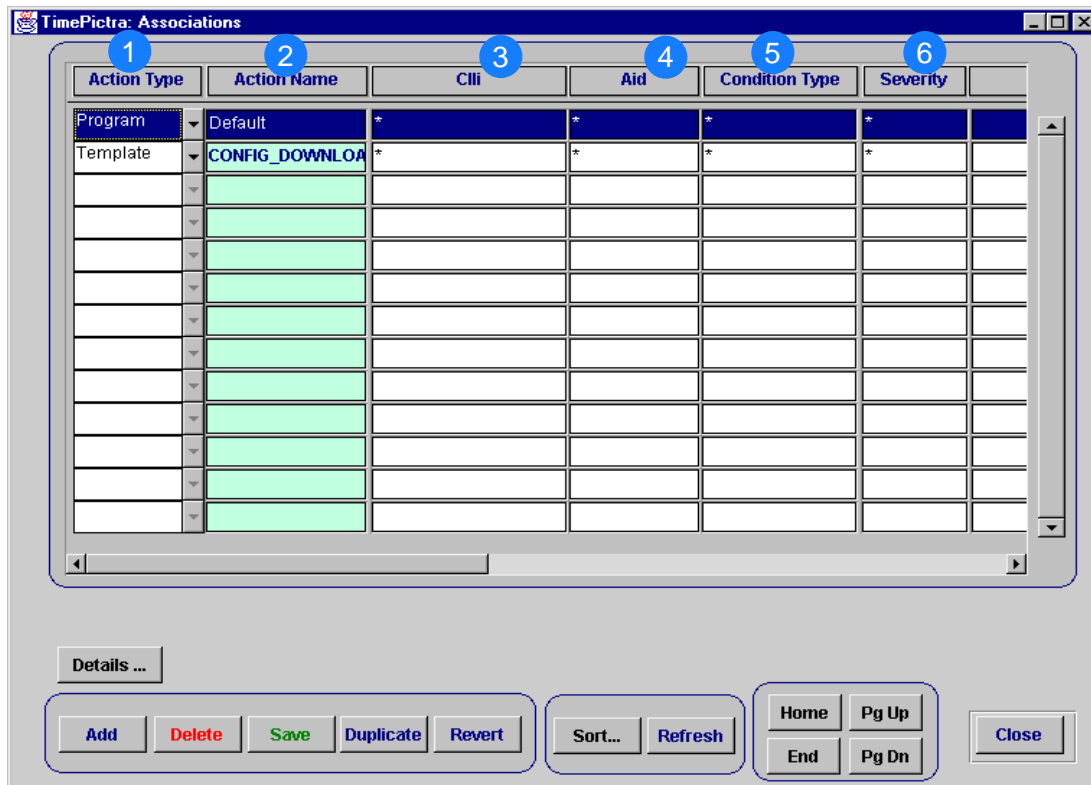
Figure 12-2.   Associations Dialog Box

Table 12-1. Associations Dialog Box Description
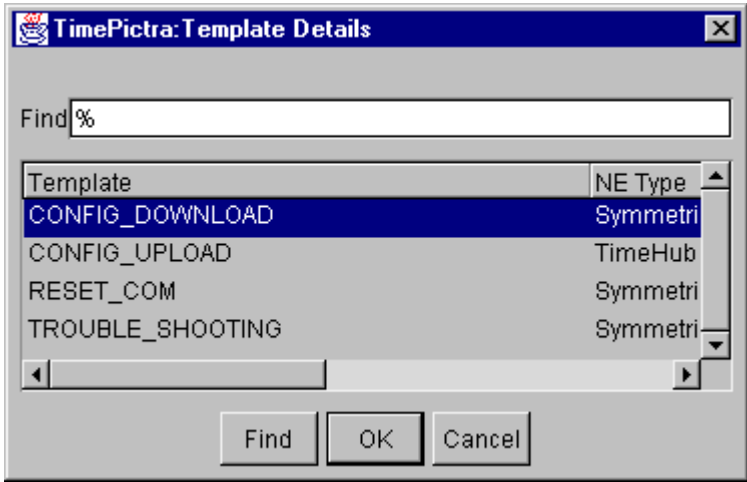
Item	Description
1	The Action Type field will contain the type of action to be executed. Currently there are two types of actions; Command Templates and external programs. A command template is a predefined bundle of commands that can be sent to one or more specific network element(s), and an external 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 12-1. Associations Dialog Box Description (Continued)
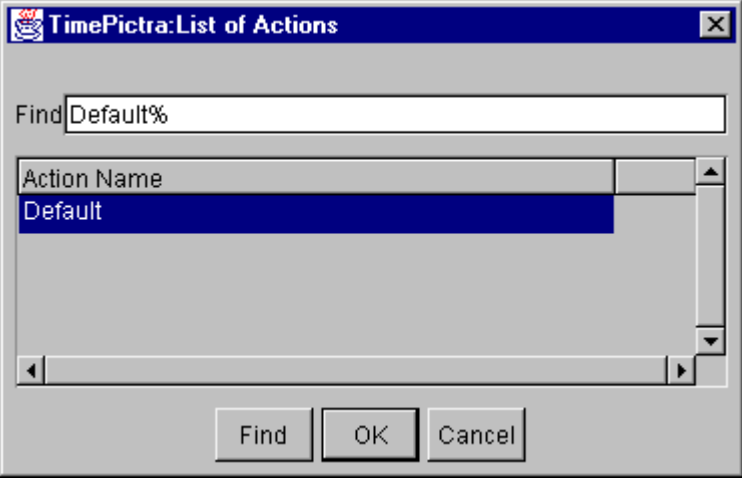
Item	Description
	If the Action Type field is set to Program, then double-clicking on the Action Name field will bring up a list of the actions defined in the Action Details form. This is shown below: After selecting an action and clicking OK, the name of the action will populate the Action Name field and that action will be executed when all of the user-defined conditions in that row are met.

Table 12-1. Associations Dialog Box Description (Continued)
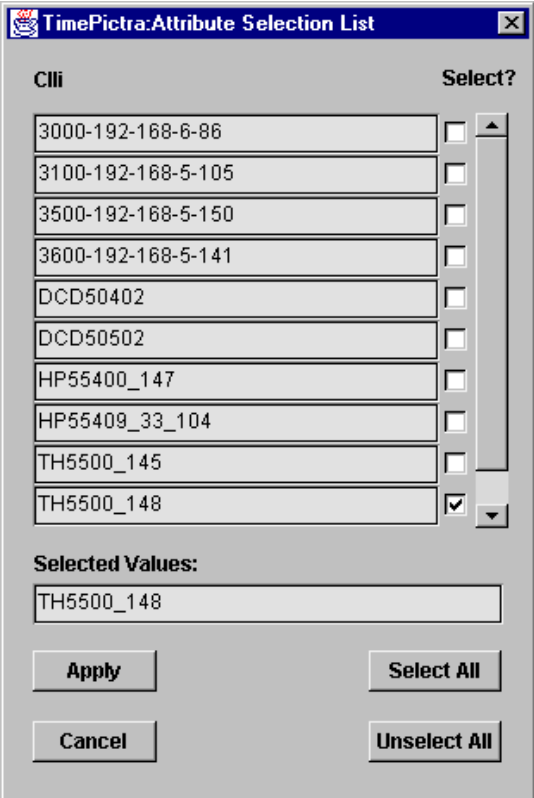
Item	Description
3	The CLLI of the network element. The action will be fired if an event comes from a network element with this CLLI. The wildcard '*' is allowed, to specify all CLLIs. Double-clicking on this field will bring up a list of available CLLIs to choose from. These are shown below: ![TimePictra:Attribute Selection List dialog showing CLLI list with 3000-192-168-6-86, 3100-192-168-5-105, 3500-192-168-5-150, 3600-192-168-5-141, DCD50402, DCD50502, HP55400_147, HP55409_33_104, TH5500_145, TH5500_148 checked. Selected Values: TH5500_148. Buttons: Apply, Select All, Cancel, Unselect All] 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 12-1. Associations Dialog Box Description (Continued)
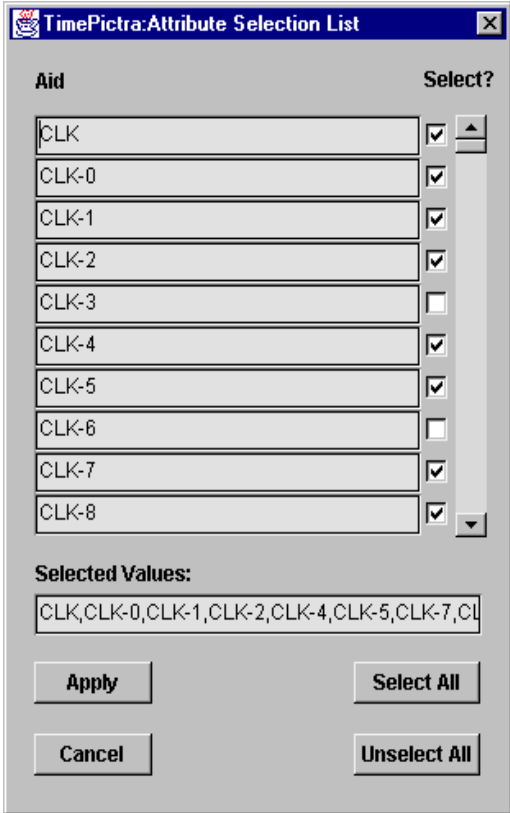
Item	Description
4	This is the AID to look for in an event. Double-clicking on the AID field will bring up a list of AIDs to choose from This list is shown below:

All desired AIDs can be selected from the list, but the 500 character limitation in the other selection lists also applies here.

Table 12-1. Associations Dialog Box Description (Continued)
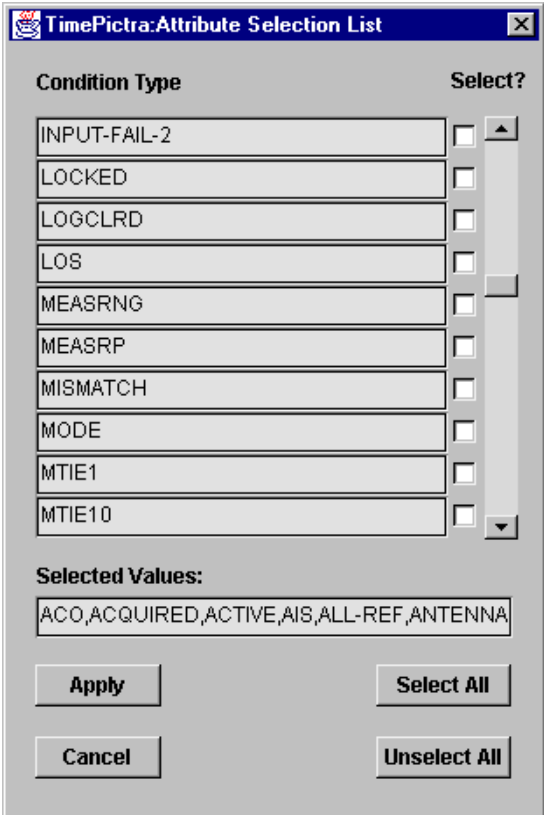
Item	Description
5	This field allows the user to specify the type of condition to look for in an event and fire actions for things such as equipment failing, clock cards going into holdover, fuses blowing, or performance thresholds being crossed. Double-clicking on this field for the chosen action will 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 12-1. Associations Dialog Box Description (Continued)
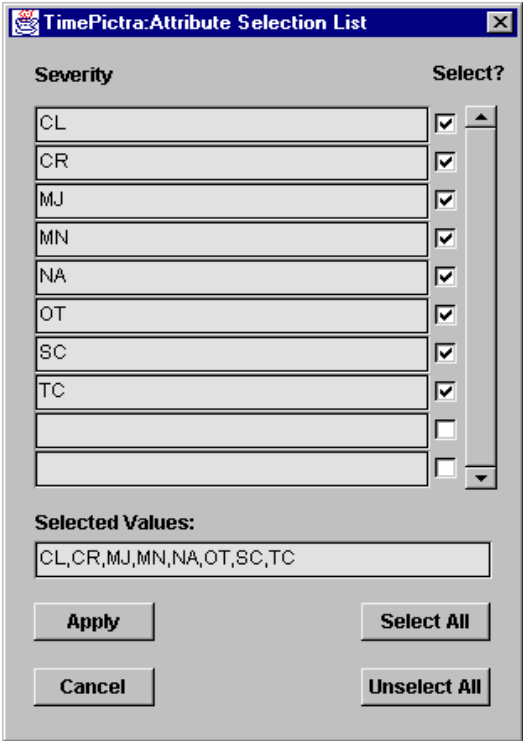
Item	Description
6	This field allows the user to look for a specific severity in an event. All known severities for all supported network elements are represented. Double-clicking on this field will bring up the following menu:

All desired severities can be selected from the list.

Table 12-1. Associations Dialog Box Description (Continued)
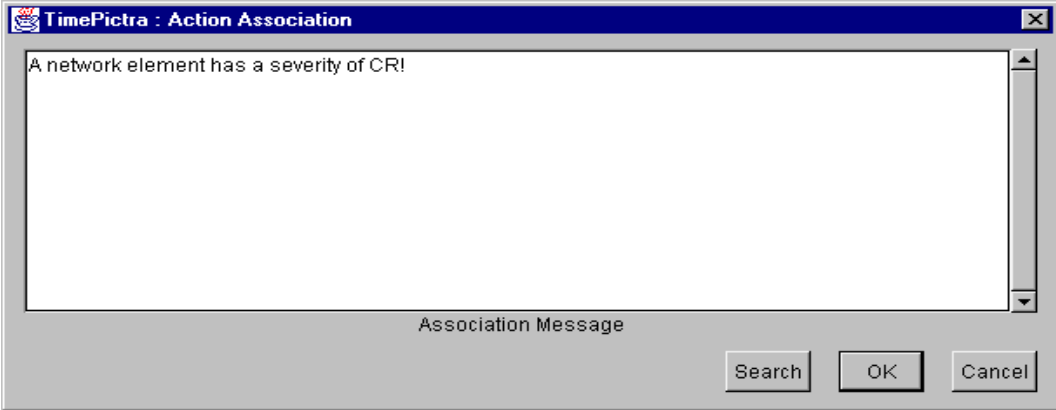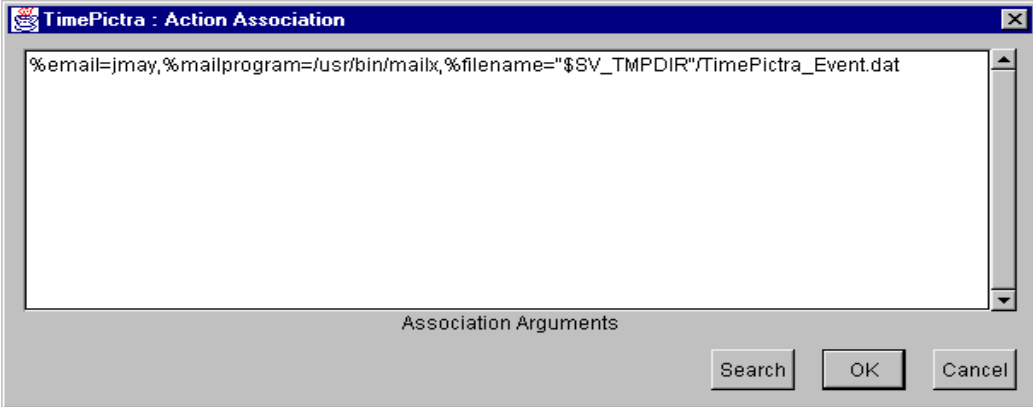
Item	Description
	Association Message (*not shown in above figure*): Double clicking on this field contains any text the user wishes to see in the TimePictra_Event.dat file when the above user-defined conditions are met. This allows the user to define several different conditions to fire the same action, 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:

Table 12-1. Associations Dialog Box Description (Continued)

Item	Description
	Association Arguments (*not shown in above figure*): 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
	Event Type (*not shown in above figure*): 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.

In This Chapter

- Overview
- Command Pass-Through

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 13-1 and Table 13-1 explain the Pass-Through Interface dialog box.
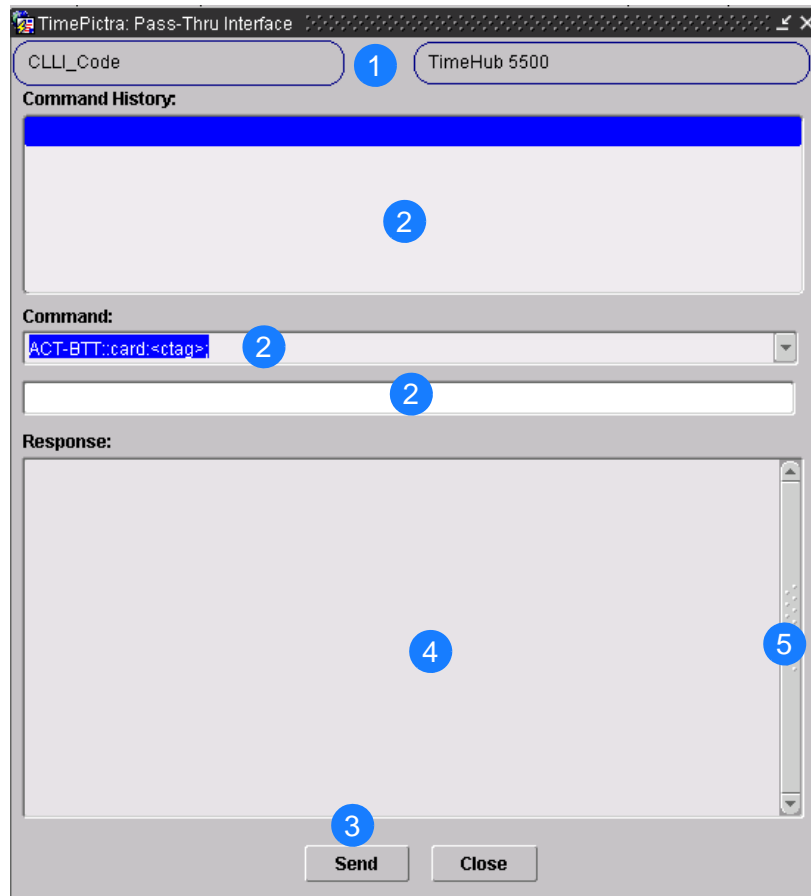
Figure 13-1.   Pass-Through Interface Dialog Box

Table 13-1. 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.
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

The following procedure explains how to pass through a TL/1 command to an NE.

> **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 <u>P</u>ass Thru... from the Pass<u>T</u>hru menu.

> **Note:** The selected NE must be in the managed state in order to invoke the Pass-through Interface dialog box.

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.

Chapter 14 Miscellaneous Functions

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.

In This Chapter

- Overview
- The Activity Log Viewer
- Network Element Locks
- Identify the User Currently Logged On
- Perform a Forced Alarm Sync Operation on an NE
- Transaction Log
- Setting User Preferences

Overview

The software contains various miscellaneous functions that you can 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 that shows the username of the user that is running the current session, as well as the group (user class) of that user.

Activity Log

The software maintains a log, referred to as the activity log, that 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 is not logged. Changes made using the TimePictra Pass Thru interface are also considered to be direct (non-GUI) changes, and those transactions are not logged.

User Preference

At this dialog box you can select the time for launching auto refresh and alarm viewer auto refresh and you can select the default filter.

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 14-1 and Table 14-1 briefly explain the Activity Log viewer dialog box.
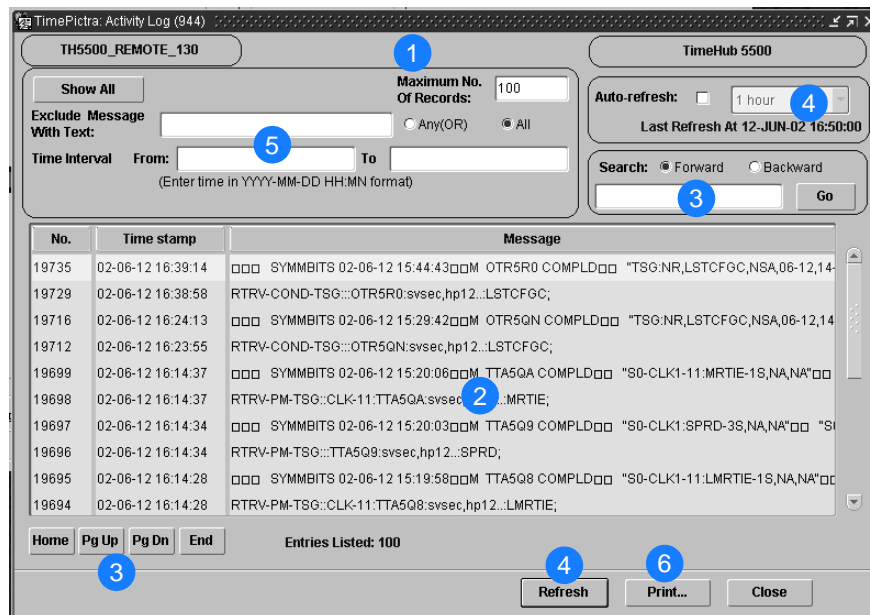
Figure 14-1.   Activity Log Dialog Box

Table 14-1. 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.
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 and the 10 most-recent heartbeat commands and responses. 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.

Table 14-1. Activity Log Dialog Box Description (Continued)

Item	Description
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 Create an Activity Log Report, on page 268 for more information.

View the Activity Log

The following procedure explains how to view the activity log.

> **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 <u>A</u>ctivity Log... from the <u>M</u>isc 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 14-2 explains the information provided for each entry in the Activity Log.

Table 14-2. 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

The following procedure explains how to search the activity log.

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.

Filter Entries from the Activity Log

The following procedure explains how to filter entries from the activity log.

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 14-3.

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.

Table 14-3 explains the Activity Log filtering criteria.

Table 14-3. 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.

The following procedure explains how to create an activity log report.

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

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 Filter Entries from the Activity Log, on page 267.

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:
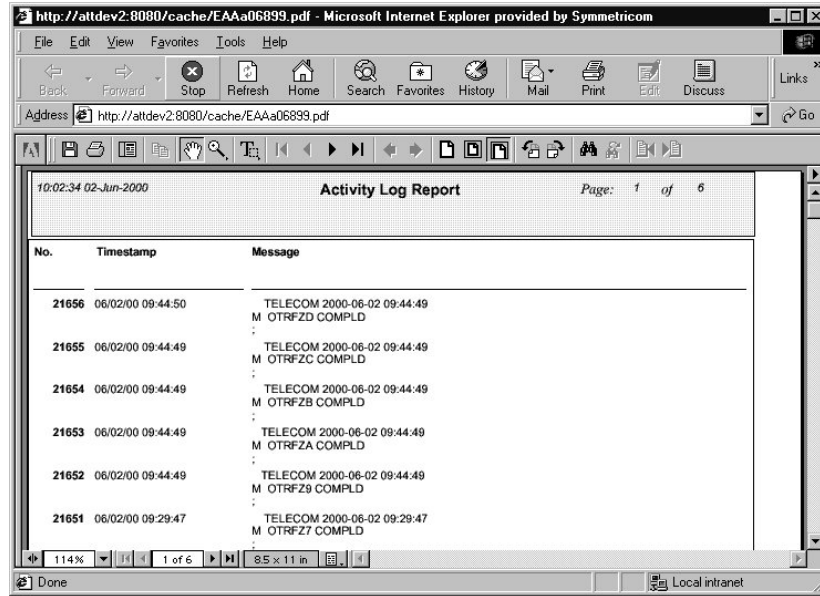
Note: By default, the software displays the Activity Log report, which is generated in PDF format, using the Acrobat® Reader (version 5.0 and above) as a plug-in or helper to the browser. If the Acrobat Reader is not already installed on your client, you can obtain it from Adobe Systems Incorporated.

3. Use the controls of the Acrobat Reader to navigate, save, or print the Activity Log Report.

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 14-2 shows an example of the information box.

Figure 14-2.   Show User Information Box

Click OK in the information box dismisses it.

Perform a Forced Alarm Sync Operation on an NE

The following procedure explains how to initiate a forced alarm synchronization operation on a selected NE.

> **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.

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.

Notes:

1. 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.

2. Changes made in the NE User Administration forms are not logged; no user information such as user name, password, or security levels are logged.

Figure 14-3 and Table 14-4 briefly explain the Transaction Log dialog box.
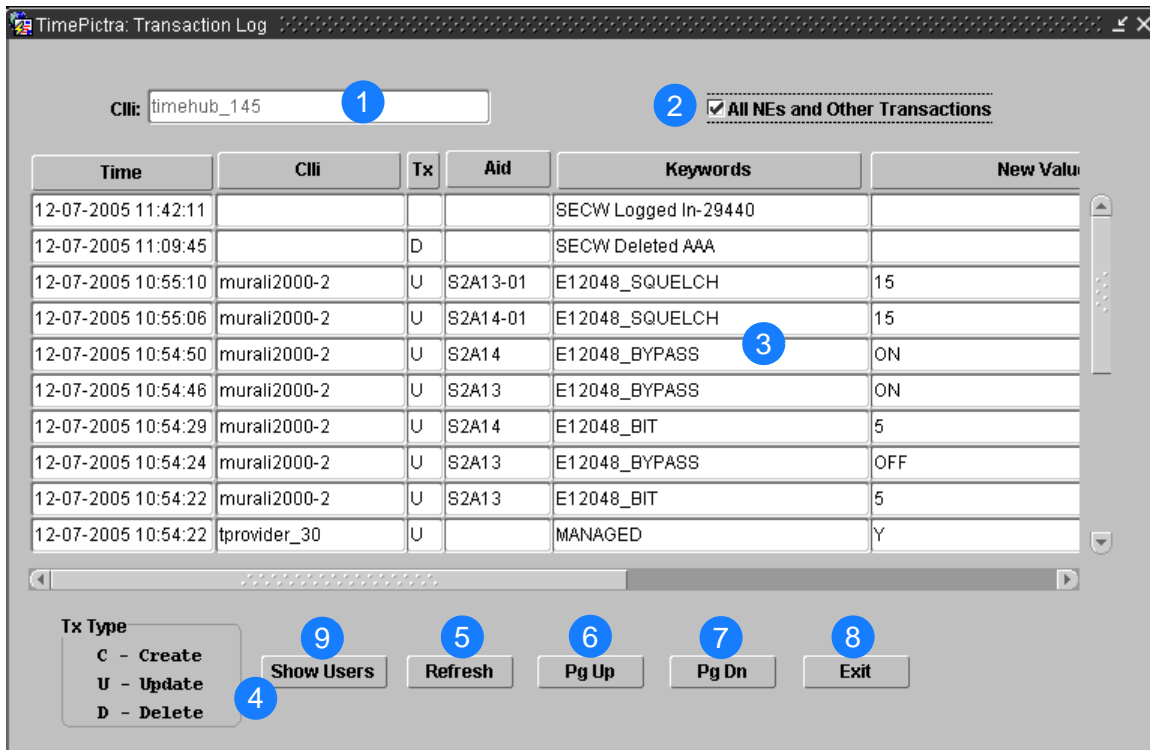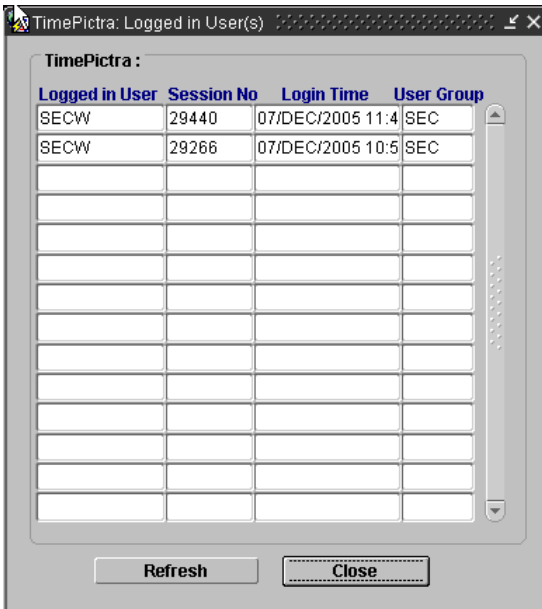
Figure 14-3.   Transaction Log Dialog Box

Table 14-4. 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 and Other Transactions 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 and Other Transactions 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 14-5 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 14-5.
4	This area defines the Transaction type that is listed in the Tx column.
5	The Refresh button updates the entries, and displays any new transactions, in the dialog box.
6	The Pg Up button scrolls up through the transaction records page by page.
7	The Pg Dn button scrolls down through the transaction records page by page
8	The Exit button closes the Transaction Log dialog box.
9	The Show Users button opens a window showing all logged in users, as shown below.

Table 14-5 explains the transaction information shown in the Transaction Log dialog box.

Table 14-5. Transaction Information

Column	Description
Time	The time stamp when the transaction was carried out.
Clli	Specifies the name of Network Element for which the record corresponds.
Tx	Specifies the kind of transaction that was carried out. C indicates Create; 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.
New Values	The update that was made to the corresponding Keyword for the NE.
Old Values	The old value for the Keyword before the changes were made.
By User	The ID of the user that was responsible for carrying out the transaction.
On Object Type	The type of object associated with the operation.

Setting User Preferences

To set user preferences, choose <u>U</u>ser Preference from the <u>M</u>isc menu. This action invokes an information box that allows you to set the preferences of the user running the current and future Web user sessions. Select the 'Launch Auto Refresh' drop-down box to set the 'Launch Pad' window's auto refresh from 30 seconds up to 1 hour. Select the 'Alarm Viewer Auto Refresh' drop-down box to set the 'Alarm Viewer' window's auto refresh from 20 seconds up to 1 hour. Select the 'Default Filter' to set the initial filter used by both the 'Alarm Viewer' and 'Event History Log' windows. The initial filter is the filter that is applied when the 'Alarm Viewer' or 'Event History Log' window comes up for the first time. You can select a different filter after the window is up. Figure 14-4 shows an example of the user preference box.
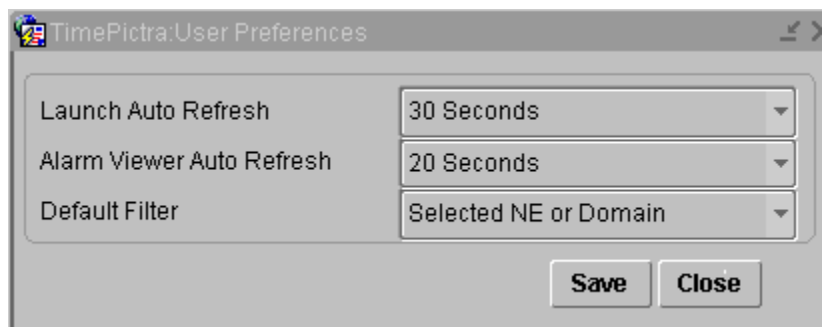
Figure 14-4.   User Preference

Appendix A NE Information - DCD Version 5.01.05

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

In This Appendix

- Network Element Status
- Deleting or Adding Equipment or Ports
- Network Element Settings

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.

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 A-1 and Table A-1 briefly explain the Network Element Status Master Shelf dialog boxes.
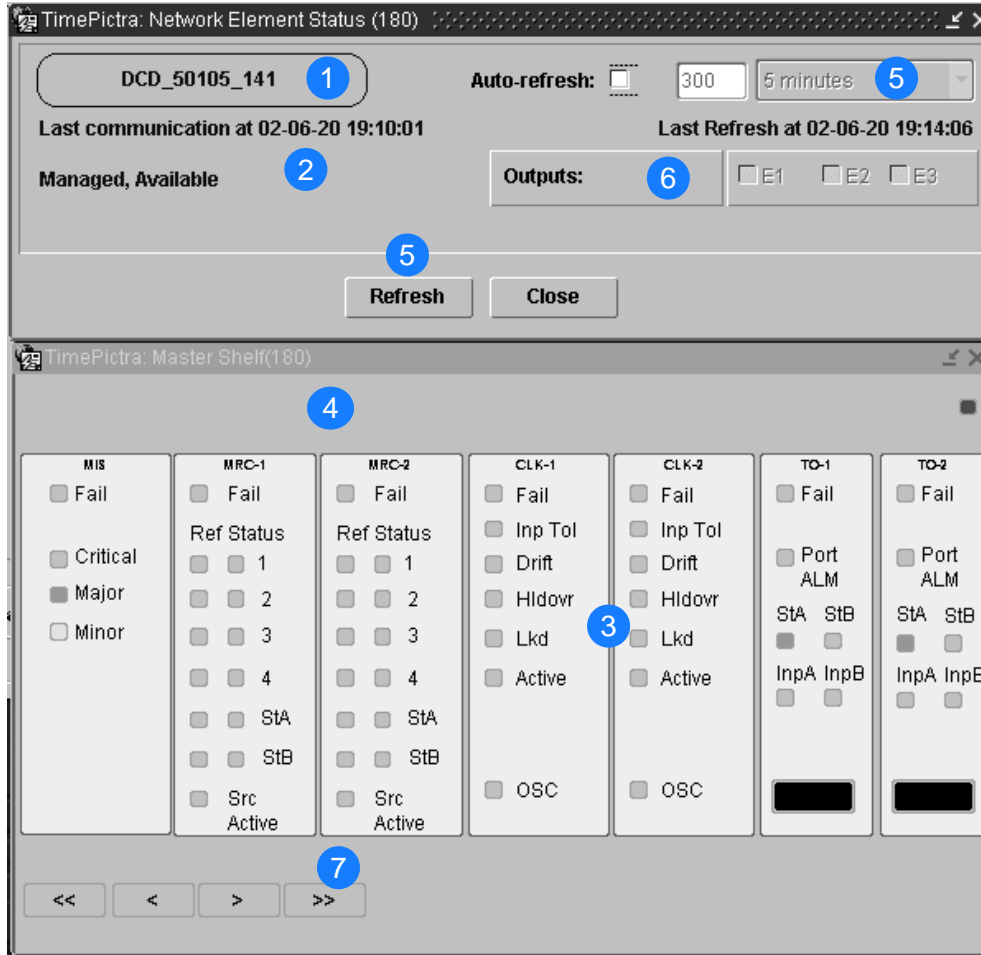
Figure A-1.   Network Element Status and Master Shelf Dialog Boxes

Table A-1. 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.

Table A-1. Network Element Status and Master Shelf Dialog Box Description (Continued)

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.

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 A-2 and Table A-2 briefly explain the Expansion Shelf *X* Output Cards dialog box.
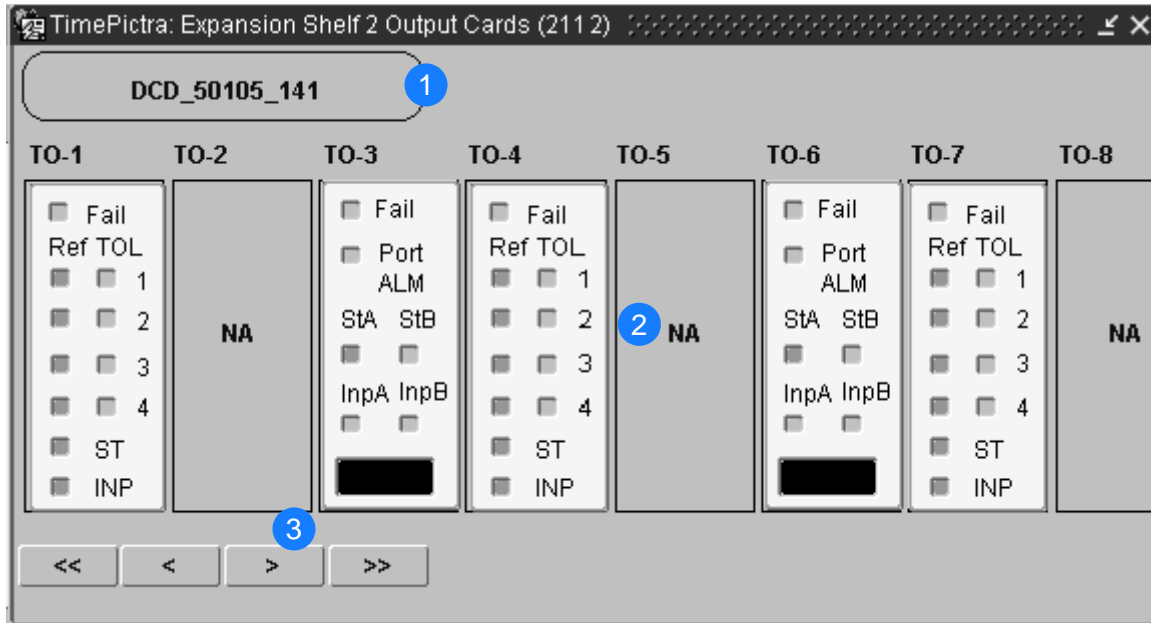
Figure A-2.   Expansion Shelf X Output Cards Dialog Box

Table A-2. 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.

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

Status Panel Indicator Descriptions

The following tables briefly explain the status indicators shown for each card in the NE:

Table A-3 explains the status indicators shown for the MIS card.

Table A-3. 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 A-4 explains the status indicators shown for the MRC card.

Table A-4. 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).
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.

Table A-4. MRC Card Status Indicators (shown as Input Card in the Status Form) (Continued)

Indicator	Description
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 A-5 explains the status indicators shown for the CLK card.

Table A-5. 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.
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 A-6 explains the status indicators shown for the PSM card.

Table A-6. 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 A-7 explains the status indicators shown for the GTI card.

Table A-7. 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 A-8 explains the status indicators shown for the TO cards.

Table A-8. 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.
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.

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.

Disable Ports On A Card

The following procedure explains how to disable ports on a card.

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 <u>M</u>odify Configuration... from the <u>C</u>onfig 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.

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 Close, 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.

Disable A Card

The following procedure explains how to disable a card.

Notes:

1. Users of the Administrator and Security classes can perform this procedure.
2. Before a card can be disabled, *all* ports on the card must be disabled (refer to the above 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 <u>P</u>ass Thru... from the Pass<u>T</u>hru 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 Send to send the command, then upon indication of successful execution, click the Close button to close the Pass-Thru Interface dialog box.

Delete Ports On A Card

The following procedure explains how to delete ports on a card.

Notes:

1. Users of the Administrator and Security classes can perform this procedure.
2. 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).

---

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 <u>M</u>odify Configuration... from the <u>C</u>onfig 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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

7. Remanage the NE. Refer to Remanage a Network Element, on page 102.

> **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.

Delete A Card

The following procedure explains how to delete a card.

> **Notes:**
>
> 1. Users of the Administrator and Security classes can perform this procedure.
> 2. 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).

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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

8. Remanage the NE. Refer to Remanage a Network Element, on page 102.

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

The following procedure explains how to add a card.

> **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 <u>M</u>odify Configuration... from the <u>C</u>onfig 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 Add Card, then click OK 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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

9. Remanage the NE. Refer to Remanage a Network Element, on page 102.

Add Ports To A Card

> **Notes:**
>
> 1. Users of the Administrator and Security classes can perform this procedure.
> 2. 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.

The following procedure explains how to add ports to a card.

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 <u>M</u>odify Configuration... from the <u>C</u>onfig 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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

7. Remanage the NE. Refer to Remanage a Network Element, on page 102.

Restore A Card To Service

The following procedure explains how to restore a card to service.

Notes:

1. Users of the Administrator and Security classes can perform this procedure.
2. 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.

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 Send to send the command, then upon indication of successful execution, click the Close button to close the Pass-Thru Interface dialog box.

Enable Ports On A Card

The following procedure explains how to enable ports on a card.

> **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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

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 A-3 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.
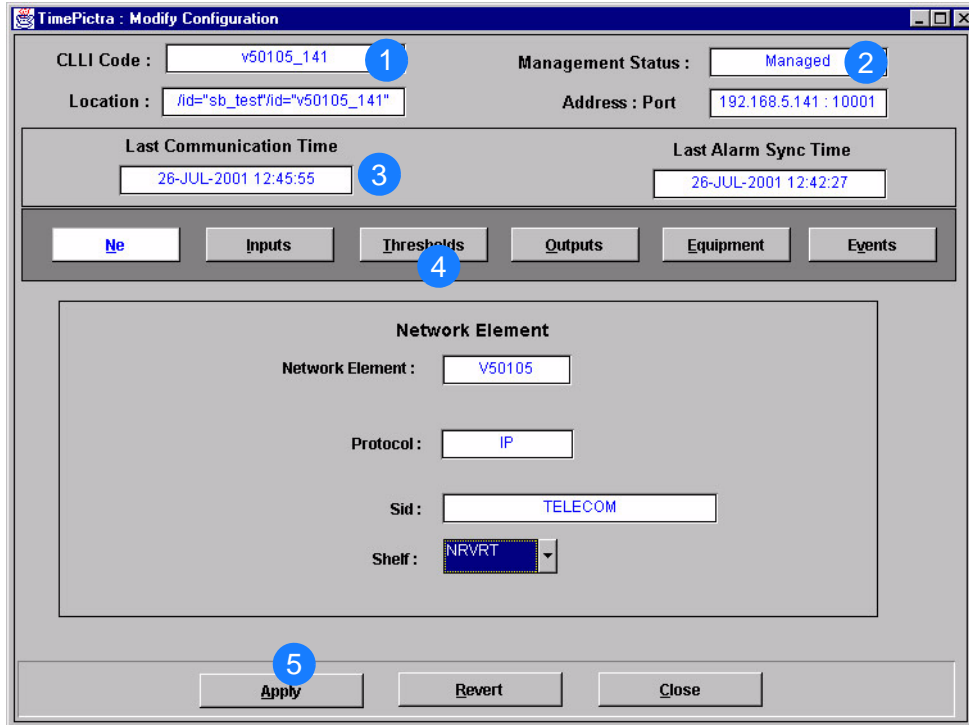
Figure A-3.   Modify Configuration Dialog Box

Table A-9. Modify Configuration 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.

Table A-9. Modify Configuration Dialog Box Description (Continued)

Item	Description
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 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 A-3 shows the layout of the action panel for Network Element settings and Table A-10 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 A-10. Network Element Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
Protocol	NE	The networking protocol used by the NE.	None
SID	NE	The system identification code assigned to the NE. *Note:* The SID must be entered in this field in all upper-case characters, otherwise, subsequent problems can occur.	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)

Note:

[1] 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. Figure A-4 and Figure A-5 show the layout of the action panel for MRC and PSM input settings, and Table A-11 gives a brief description of each setting, as well as a reference to the V50105 documentation, where more detailed information can be found.

Figure A-4.   Action Panel - MRC Cards

Figure A-5.   Action Panel - PSM Cards

Table A-11. Input Settings

Setting/Button	Card	Description	COMMAND (parameter)[1]
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[2]			
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)
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

Note:

[1] 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.

[2] Port-Specific Settings apply specifically to the input port specified by the Port Specifier.

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. Figure A-6 and Figure A-7 show the layout of the action panel for MRC and PSM threshold settings, and Table A-12 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 A-6.   Action Panel - MRC Cards

Figure A-7.   Action Panel - PSM Cards

Table A-12. Threshold Settings

Setting/Button	Card	Description	COMMAND (parameter)[1]
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[2]			
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)

Table A-12. Threshold Settings (Continued)

Setting/Button	Card	Description	COMMAND (parameter)[1]
Value	MRC, PSM	The threshold level of the value in the specified performance monitoring register.	SET-TH-PORT (thlev)

Note:

[1]   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.

[2]   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 A-8 shows the layout of the action panel for TO settings, and Table A-13 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.
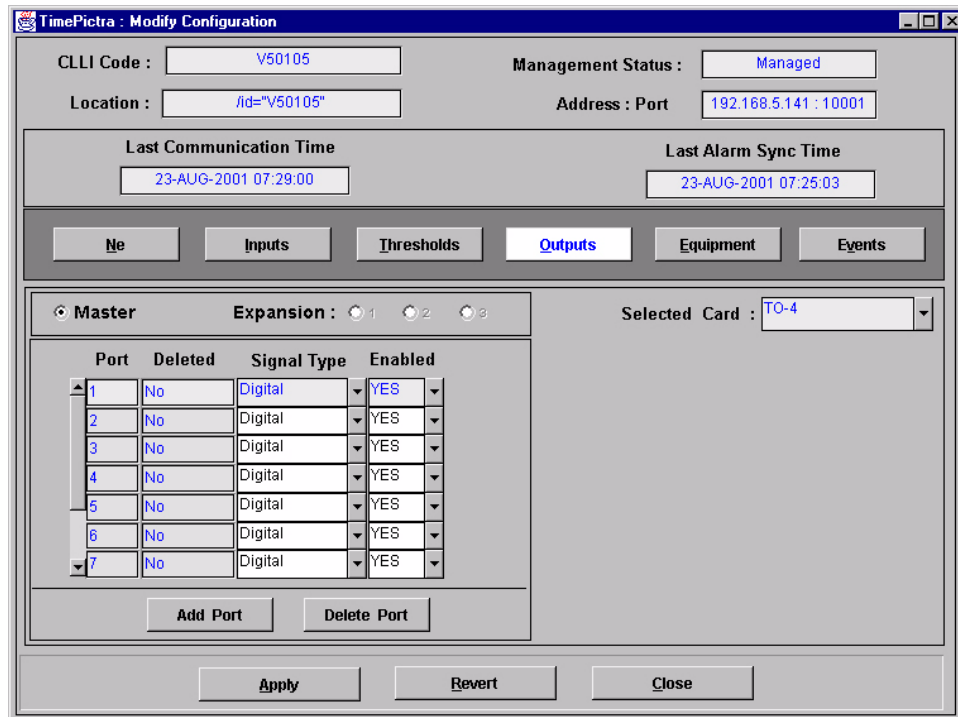
Figure A-8.   Action Panel - TO Cards

Table A-13. Output Settings

Setting/Button	Card	Description	COMMAND (parameter)[1]
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			
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[2]			
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, analog or digital.	ED-PORT (signal type)
Buttons			
Add Port	TO	Clicking this button invokes a dialog box from which 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

Note:

[1] 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.

[2] Port-Specific Settings apply specifically to the output port specified by the Port Specifier.

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. Figure A-9 and Figure A-10 show the layout of the action panel for GTI and MRC equipment-level settings, and Table A-14 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 A-9. Action Panel - GTI Cards

Figure A-10. Action Panel - MRC, PSM, Clock Cards

Table A-14. Equipment Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
Shelf Selector			
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[2]			
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)

Table A-14. Equipment Settings (Continued)

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
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

Note:

[1] 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.

[2] *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. Figure A-11 and Figure A-12 show the layout of the action panel for MRC and PSM event severity settings, and Table A-15 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.
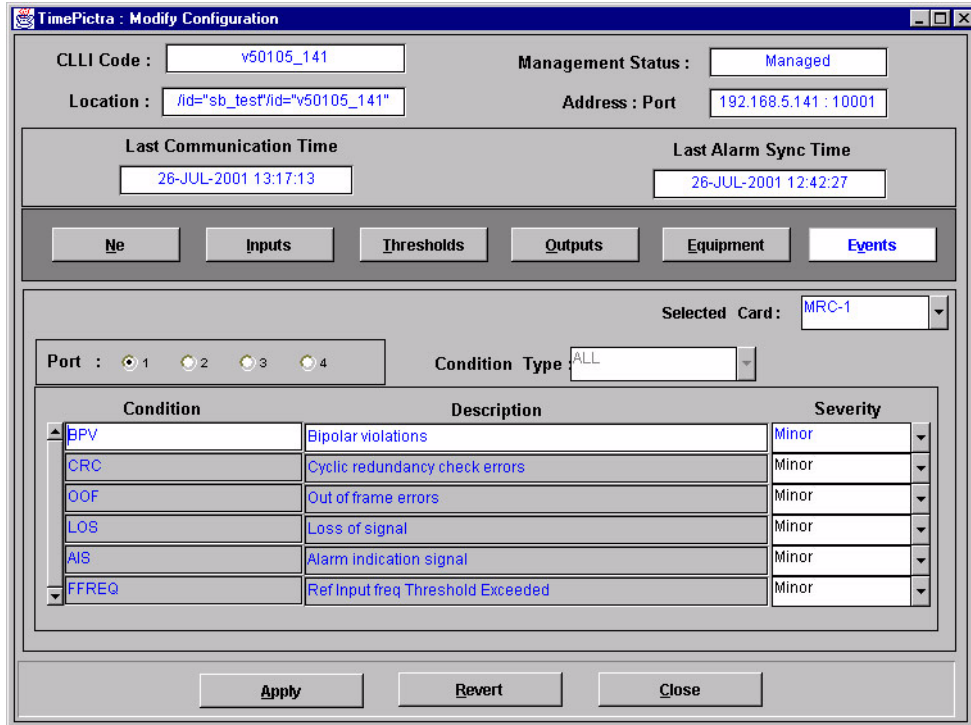
Figure A-11. Action Panel - MRC Cards
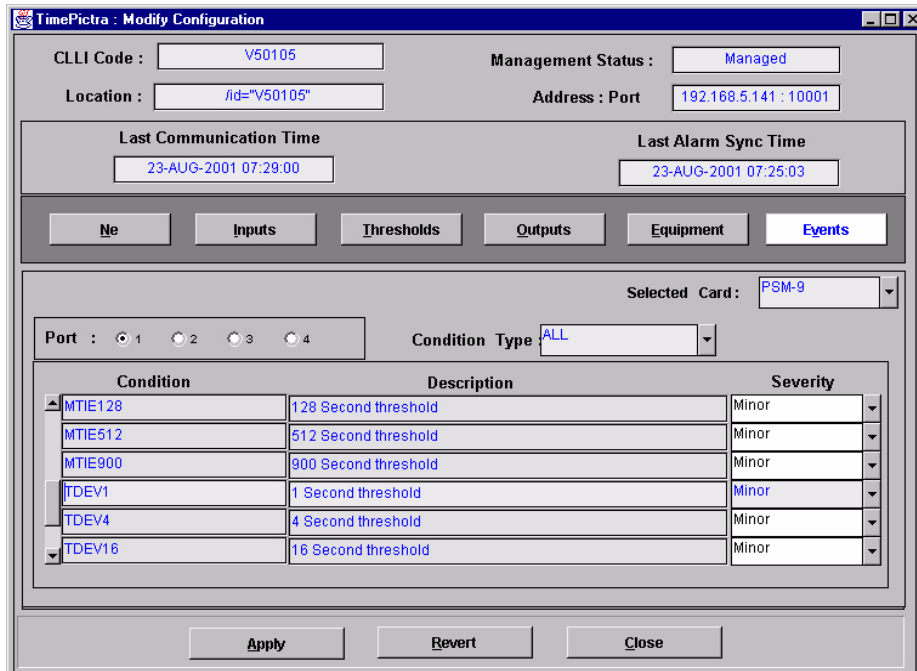
Figure A-12. Action Panel - PSM Cards

Table A-15. Event Settings

Setting/ Button	Card	Description	COMMAND (parameter)[1]
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[2]			
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)

Note:

[1] 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.

[2] *Port-Specific Settings* apply specifically to the input port specified by the Port Selector.

Appendix B 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.

In This Appendix

- Network Element Status
- Deleting or Adding Equipment or Ports
- Network Element Settings

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.

Network Element Status and Master Shelf dialog boxes

Figure B-1 and Table B-1 explain how to use the Network Element Status and Master Shelf forms.

> **Note:** Refer also to Output Protection Indication, on page 309 for an explanation of how protection schemes are indicated in the Master Shelf dialog box.
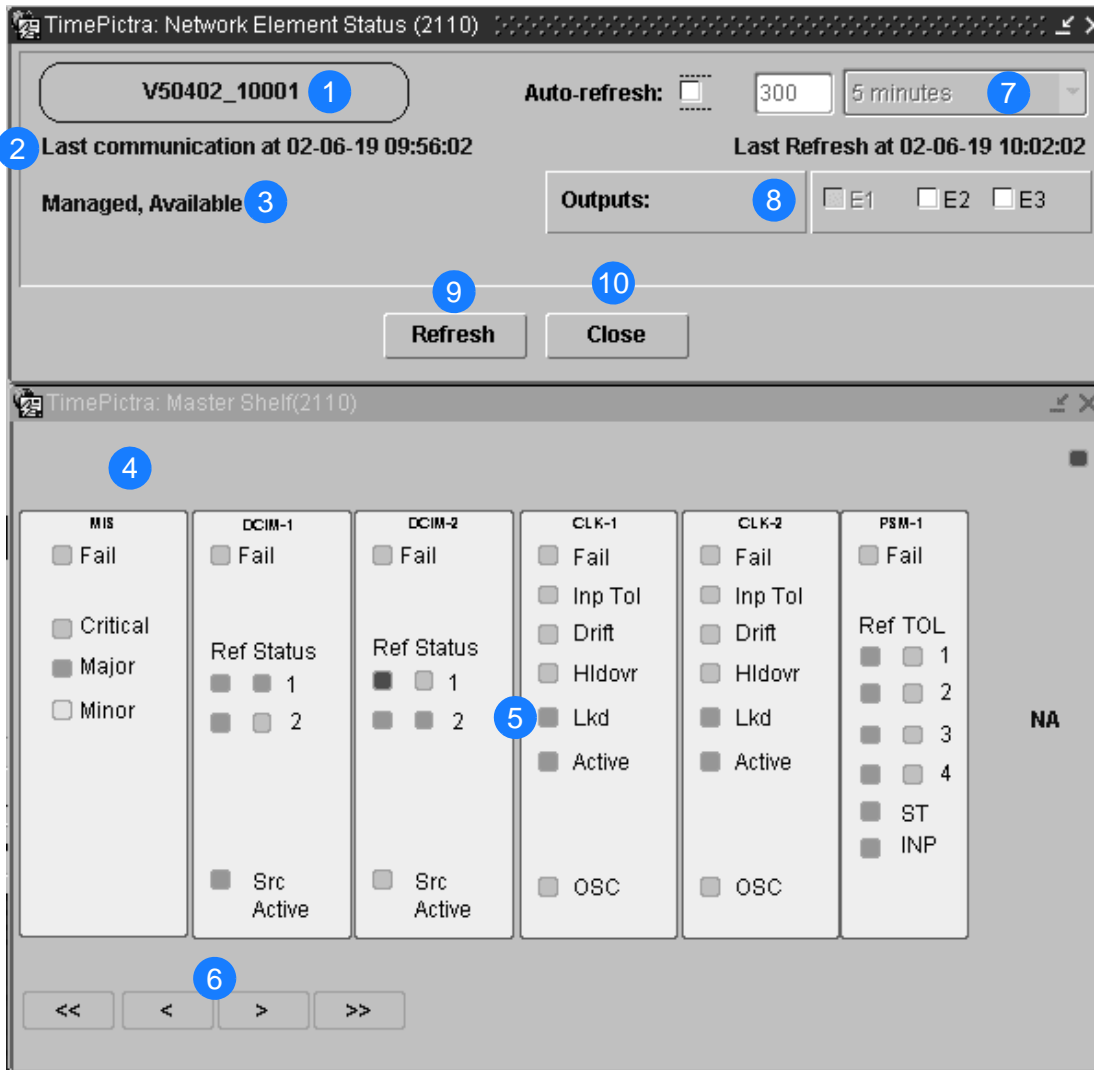
Figure B-1.   Network Element Status and Master Shelf Dialog Boxes

Table B-1. 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 is replaced with, "----- Status Unknown -----"
4	The two GPS related cards are shown here. If one or both of them is not present, the space where they would be shown is empty. Clicking on the AID (e.g. GTI1) displays a message box with a brief status of the card.

Table B-1. Network Element Status and Master Shelf Dialog Box Description (Continued)

Item	Description
5	A visual representation of the master shelf cards is shown here. Clicking on one of the colored alarms on the MIS card spawns 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 enables 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 brings 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 immediately queries the network element and retrieves 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.

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 B-2 and Table B-2 explain how to use the Expansion Shelf *X* Output Cards dialog box.

> **Note:** Refer also to Output Protection Indication, on page 309 for an explanation of how protection schemes are indicated in the Expansion Shelf *X* Output Cards dialog box.
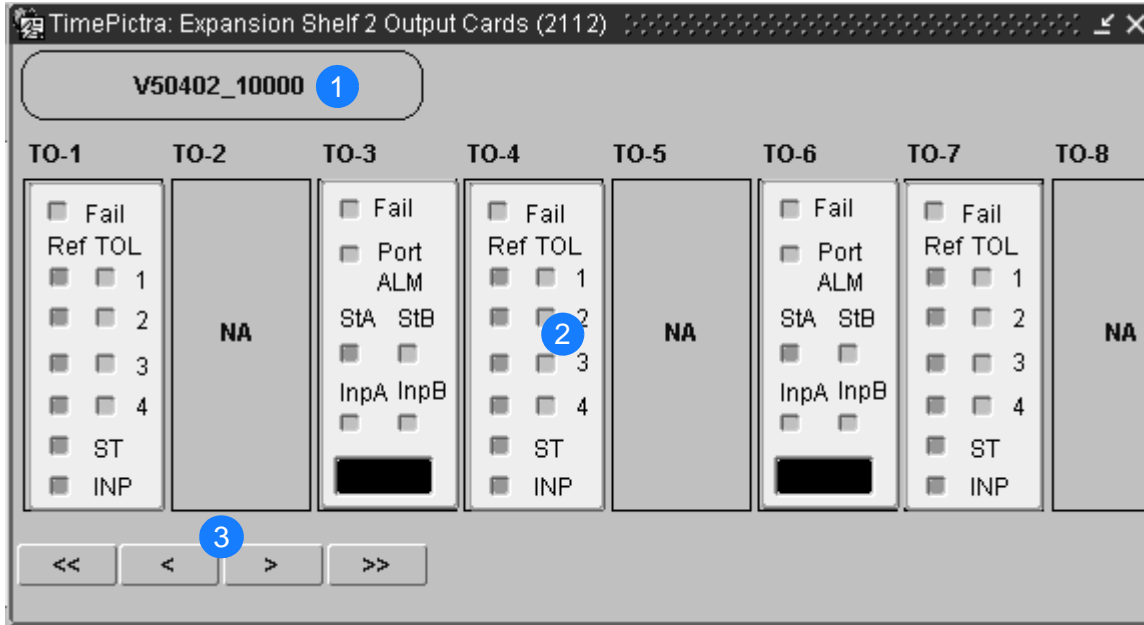
Figure B-2.   Expansion Shelf X Output Cards Dialog Box

Table B-2. 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.

Output Protection Indication

Figure B-3 and Table B-3 explain how protection schemes are indicated in the Master Shelf and Expansion Shelf *X* Output Cards dialog boxes. Figure B-3 shows the applicable portion of those dialog boxes.
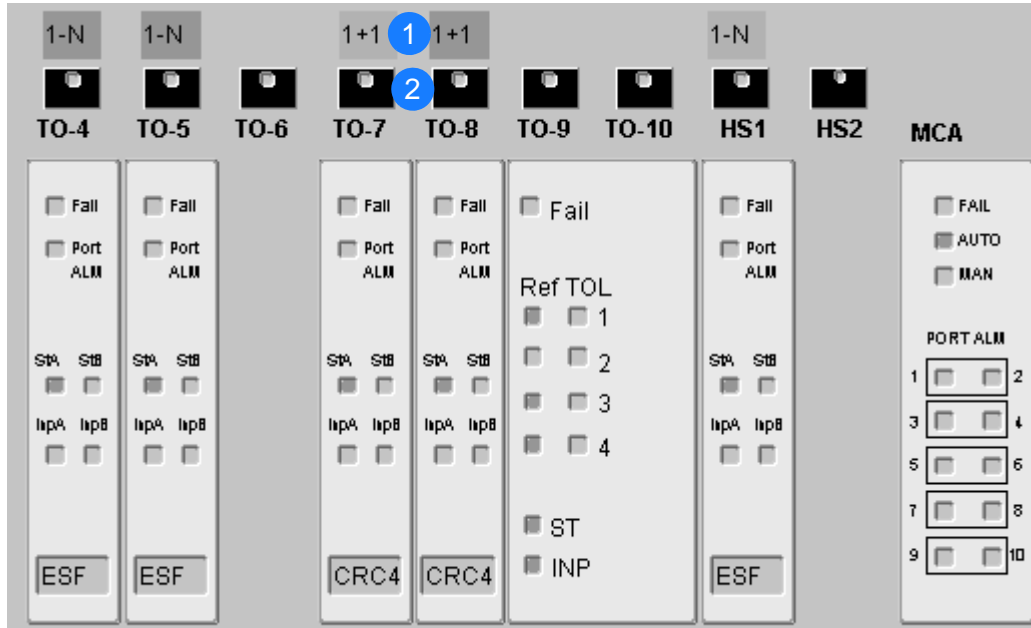
Figure B-3. Output Protection Indication

Table B-3. 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. |

Status Panel Indicator Descriptions

The following tables briefly explain the status indicators shown for each card in the NE: Table B-4 explains the status indicators shown for the MIS card.

Table B-4. 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.

Table B-5 explains the status indicators shown for the Input card.

Table B-5. 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.
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 B-6 explains the status indicators shown for the CLK card.

Table B-6. 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.
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 B-7 explains the status indicators shown for the PSM card.

Table B-7. 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.

Table B-7. PSM Card Status Indicators (Continued)

Indicator	Description
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 B-8 explains the status indicators shown for the GTI card.

Table B-8. 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 B-9 explains the status indicators shown for the TO cards.

Table B-9. 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.

Table B-9. TO Card Status Indicators (Continued)

Indicator	Description
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.
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 B-10 explains the status indicators shown for the MCA card.

Table B-10. 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.
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.

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.

Deleting 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.

Disabling Ports On A Card

The following procedure explains how to disable ports on a card.

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.

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.

Disabling A Card

The following procedure explains how to disable a card.

> **Notes:**
> 1. Users of the Administrator and Security classes can perform this procedure.
> 2. Before a card can be disabled, *all* ports on the card must be disabled (refer to the above 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 <u>P</u>ass Thru... from the Pass<u>T</u>hru 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 Send to send the command, then upon indication of successful execution, click Close to close the Pass-Thru Interface dialog box.

Deleting Ports On A Card

The following procedure explains how to delete ports on a card.

> **Notes:**
> 1. Users of the Administrator and Security classes can perform this procedure.
> 2. 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).

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 Delete Port, then answer appropriately in the question and confirmation boxes that follow. Note that if you are deleting the card, all ports on the card must be deleted.

6. Click Close, then OK in the question box that follows to close the Modify Configuration dialog box.

7. Remanage the NE. Refer to Remanage a Network Element, on page 102.

> **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.

Deleting A Card

The following procedure explains how to delete a card.

> **Notes:**
> 1. Users of the Administrator and Security classes can perform this procedure.
> 2. 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).

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 Delete Card, 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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

8. Remanage the NE. Refer to Remanage a Network Element, on page 102.

Adding 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 must first be added physically in the NE before using TimePictra to populate and change the card's configuration on the MIS card.

Adding a Card

The following procedure explains how to add a card.

> **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 Add Card, then click OK 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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

9. Remanage the NE. Refer to Remanage a Network Element, on page 102.

Adding Ports to a Card

The following procedure explains how to add ports to a card.

> **Notes:**
> 1. Users of the Administrator and Security classes can perform this procedure.
> 2. 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.

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 <u>M</u>odify Configuration... from the <u>C</u>onfig 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 Add Port, click OK in the Add Port dialog box, then answer appropriately in the question and confirmation boxes that follow.

6. Click Close, then OK in the question box that follows to close the Modify Configuration dialog box.

7. Remanage the NE. Refer to Remanage a Network Element, on page 102.

Restoring a Card to Service

The following procedure explains how to restore a card to service.

Notes:
1. Users of the Administrator and Security classes can perform this procedure.
2. 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.

---

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 <u>P</u>ass Thru... from the Pass<u>T</u>hru 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 Send to send the command, then upon indication of successful execution, click Close to close the Pass-Thru Interface dialog box.

Enable Ports on a Card

The following procedure explains how to enable ports on a card.

> **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 Close, then OK in the question box that follows to close the Modify Configuration dialog box.

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.
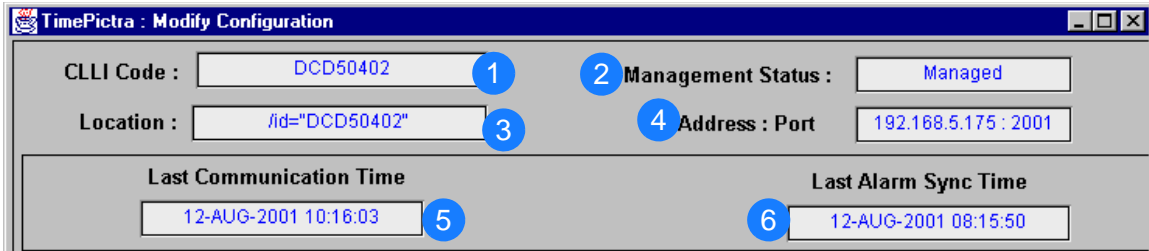
Figure B-4.   Modify Configuration

Table B-11. 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.
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 B-12 gives a brief description of each setting.

NE (Network Element)

Figure B-5.   Network Element

Table B-12. 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.

Table B-12. Network Element Dialog Box Description (Continued)
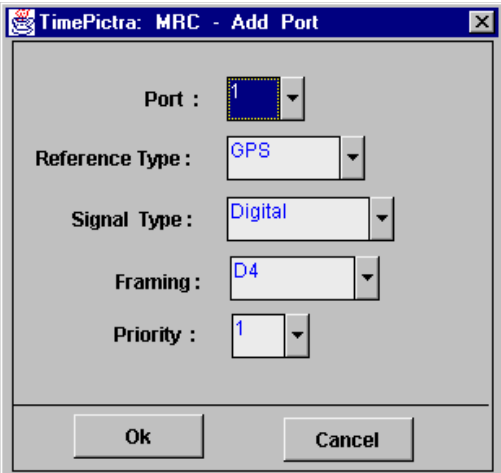
Item	Description
6	The amount of time (ms) from a signal quality SSM change (following the persistence delay and which does not require a switch or rearrangement) at an input until the new SSM is sent to the timing output cards (in 100 ms steps).
7	The amount of time (ms) from a signal quality SSM change (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).
9	Sets the message type (REPT-ALM-PORT or REPT-ALM-EQPT) used to report autonomous port-alarm messages.
10	Causes the NE to emulate a power-on sequence and can be used for the following tasks: ■ Change to Alternate MIS Card Program ■ Delete Card Database in MIS Card ■ Reset MIS Card ■ Completely Reset MIS Card to Factory Settings
11	Copies MIS card programs from an external source to the MIS card or copies card programs and database between cards in the shelf.

Inputs/ PSM

Figure B-6.   Action Panel - Input Cards

Table B-13. Input Cards 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.
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.

Thresholds Setting
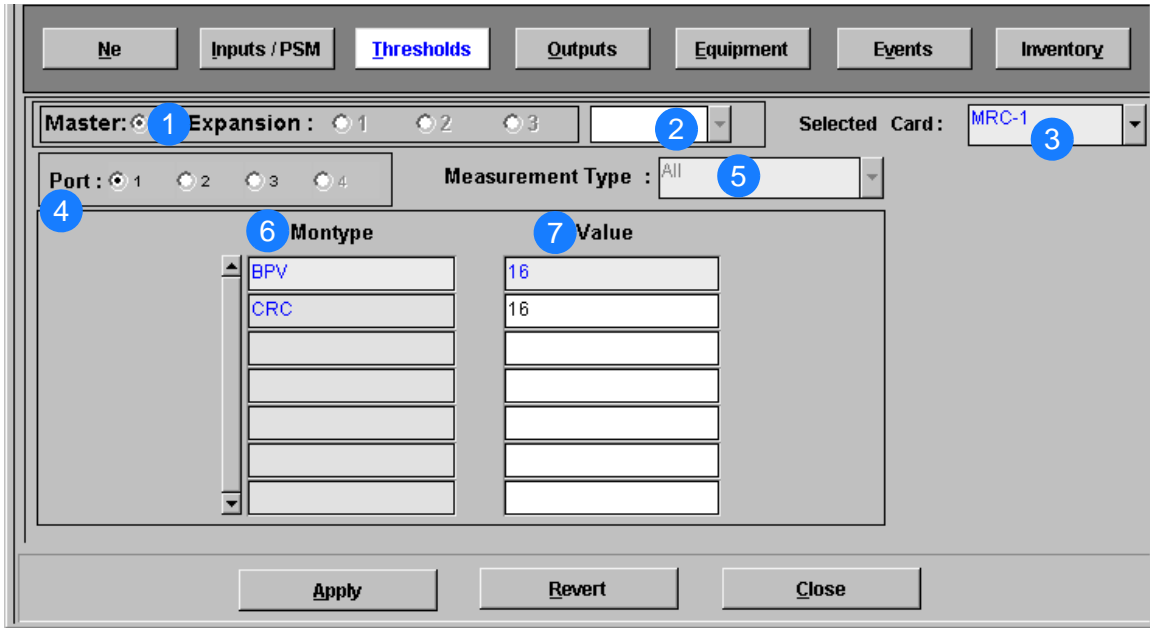
Figure B-7. Thresholds

Table B-14. 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.
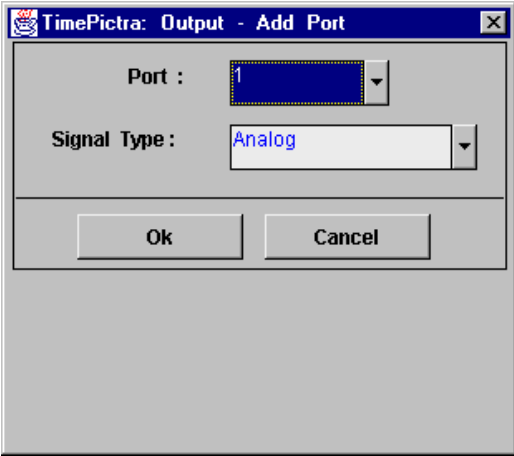
Output Settings

Figure B-8.   Output Settings

Table B-15. Outputs Dialog Box Description

Item	Description
➊	Use these buttons to access the equipment on different racks.
➋	A drop-down list of the available output cards.
➌	The port number of the selected output card.
➍	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.
➎	Delineates between analog or digital signal types.
➏	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.
➐	A field for the user to enter and save any remarks they might have about that particular port.

Table B-15. Outputs Dialog Box Description (Continued)

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.
10	Used to switch from a timing output card in a TO slot to a protection card of the same type in an HS slot. **Note:** This is only for timing output cards that are set for 1:N protection.

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
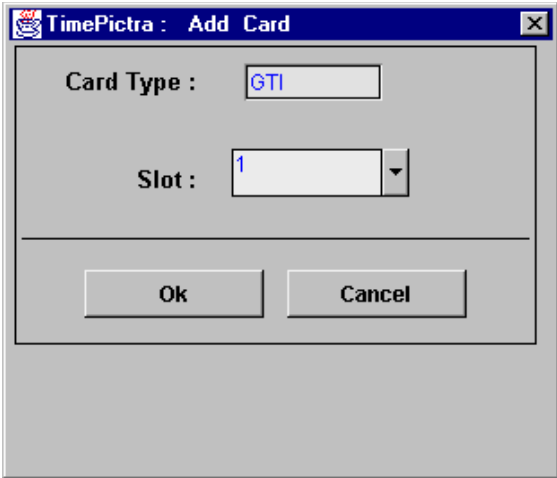
Figure B-9. LPR Shelf Information Settings

Table B-16. LPR 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.
6	The action to take when the card has a major alarm.

Table B-16. LPR Shelf Information Description (Continued)

Item	Description
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. TimePictra : Add Card Card Type : GTI Slot : 1 Ok Cancel
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.

Communication

Figure B-10. Communication Settings

Table B-17. 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 15 to 20 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.

Table B-17. Communication Description (Continued)

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:
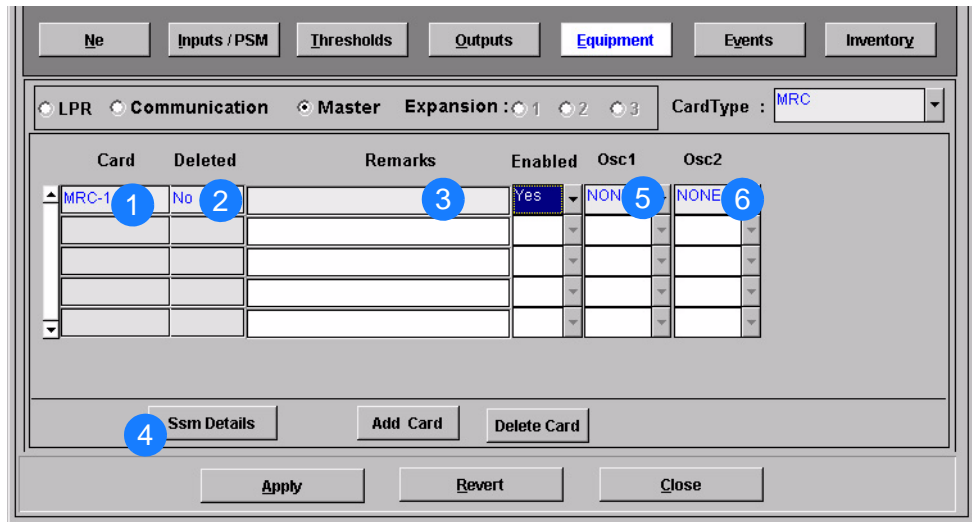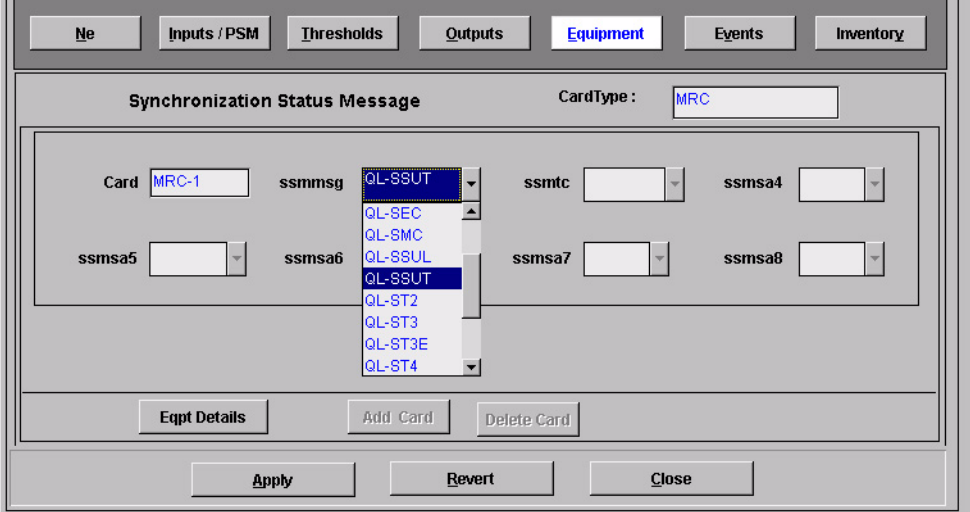
Figure B-11. Master/Expansion Settings

Table B-18. 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 you to enter and save any remarks you might have about that particular card.

Table B-18. Master/Expansion Description (Continued)

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.

Output Cards
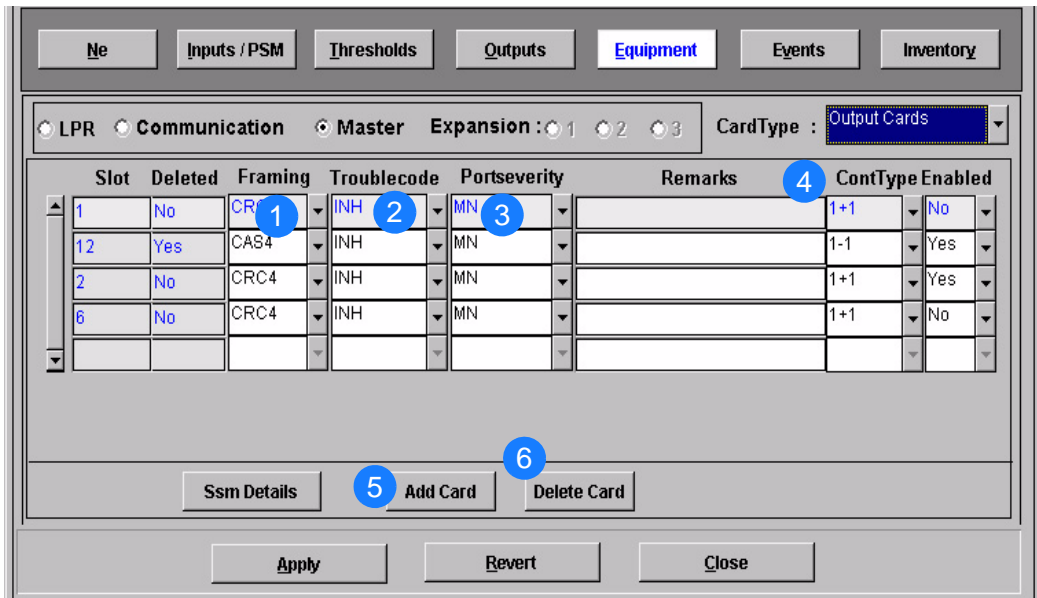
Figure B-12. Output Cards Information Settings

Table B-19. 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.
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 attempts to delete whichever card is selected at the time the button was clicked. This is equivalent to the DLT-EQPT TL1 command.
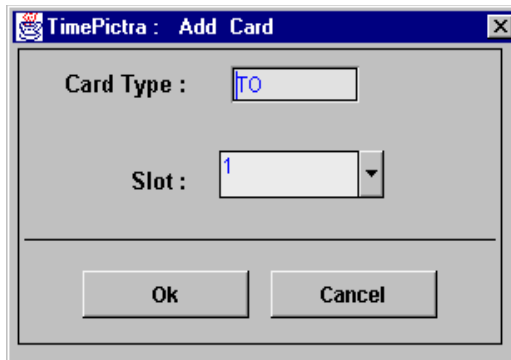
Clock Cards
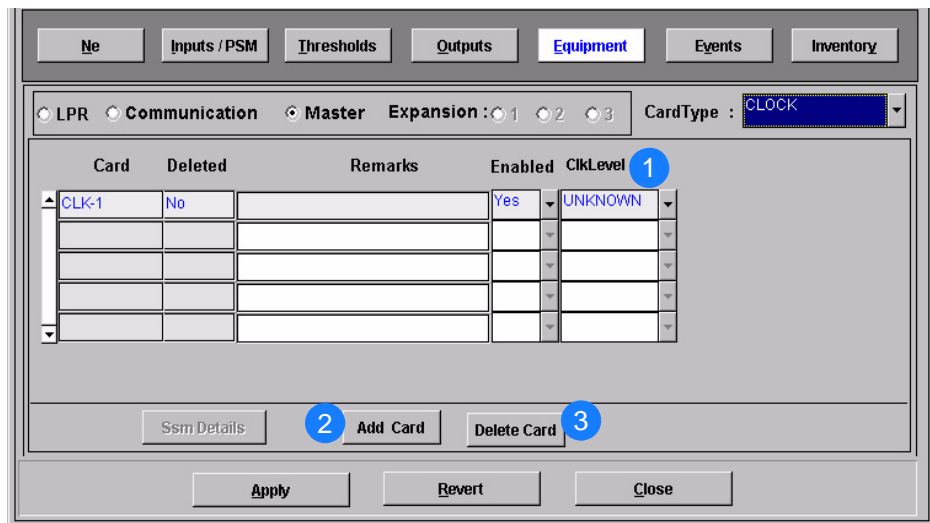
Figure B-13. Clock Cards Information Settings

Table B-20. 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.

Event Settings
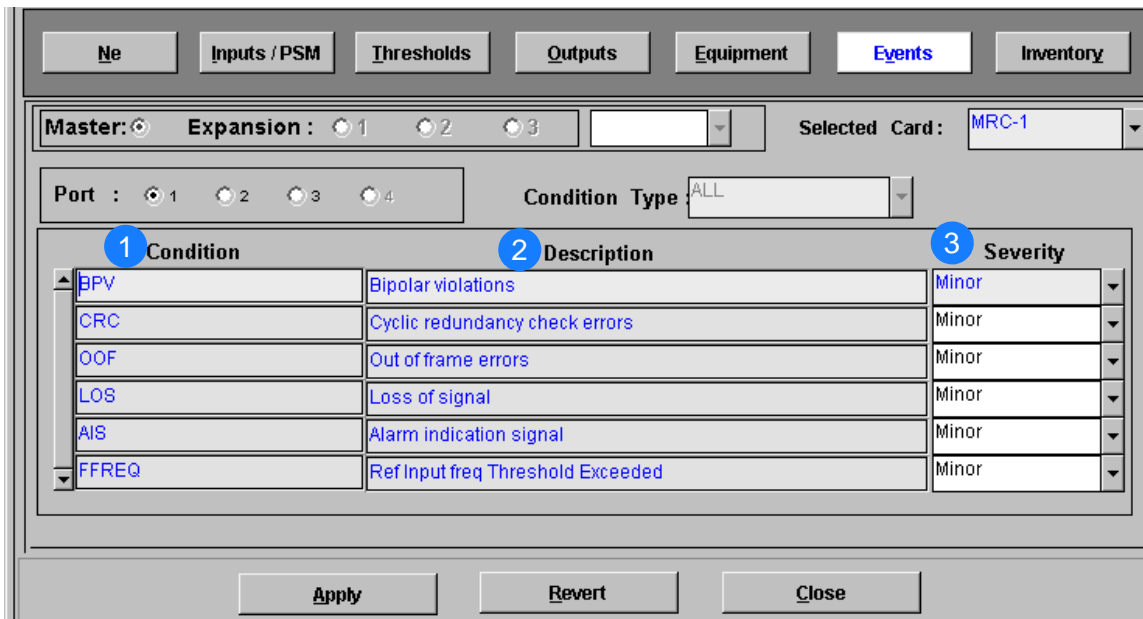
Figure B-14. Event Settings Information

Table B-21. 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.

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.
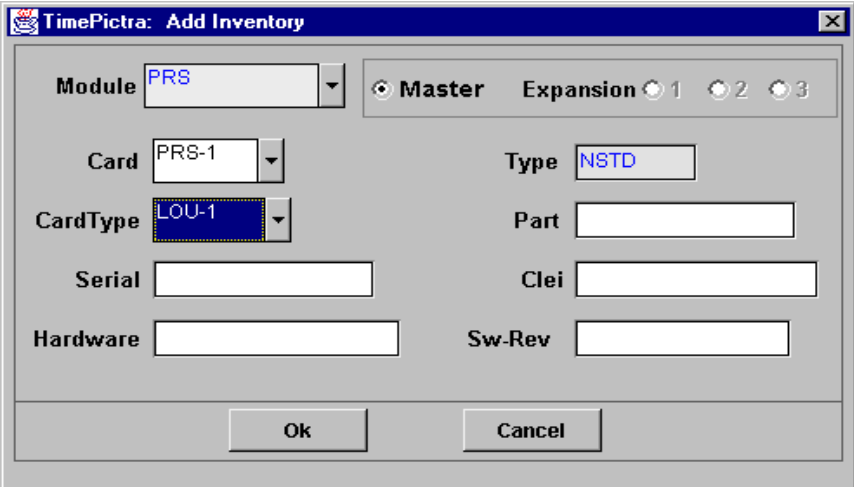
Figure B-15. Inventory Settings Information

Table B-22. Inventory Settings Information Description

Item	Description
1	The type of card inventory information listed in the table.
2	The AID of each card listed.

Table B-22. Inventory Settings Information Description (Continued)

Item	Description
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.
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.

Appendix C NE Information - PRR10

This chapter provides information and procedures that are specific to the PRR10 Network Element.

In This Appendix

- Network Element Status
- Network Element Settings

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 C-1 and Table C-1 briefly explain the Network Element Status dialog box
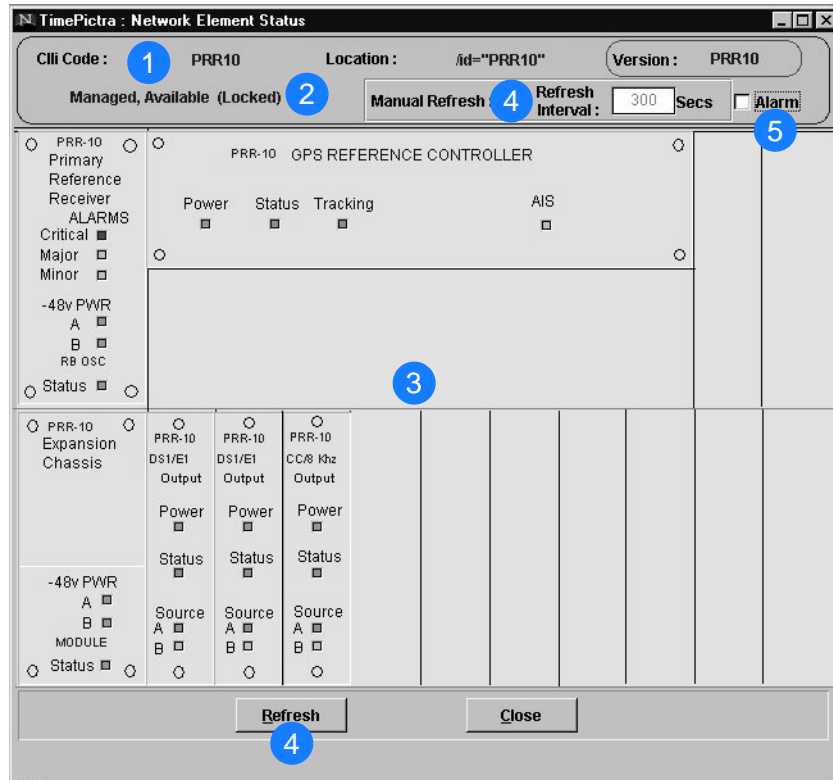
Figure C-1. Network Element Status Dialog Box

Table C-1. 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.

Table C-1. Network Element Status Box Description (Continued)

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.

Status Panel Indicator Descriptions

The following tables briefly explain the status indicators shown for each card in the NE:

Table C-2 explains the status indicators shown for the GPS Reference Controller.

Table C-2. 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 C-3 explains the status indicators shown for the Primary Reference Receiver.

Table C-3. 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 C-4 explains the status indicators shown for the Output modules.

Table C-4. 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.

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.

Network Element Settings

There are several network element-related settings that are configurable in this dialog box. Figure C-2 shows the layout of the action panel for Network Element settings, and Table C-5 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.

Network Element

Equipment Type :

Protocol : IP

Sid : PRR11

Elevation Time in Secs :
Minor to Major :
Major to Critical :

Frame Generator Status :
Frame Generator Type : ⊙ DS1   ○ E1
AIS Generation : ⊙ ON   ○ OFF
SSM Generation : ⊙ ON   ○ OFF

Figure C-2.   Action Panel - Network Element Settings

Table C-5. Network Element Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
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

Note:

[1] 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.

Output Module Settings

There are several output module-related settings that are configurable in this dialog box. Figure C-3 shows the layout of the action panel for Output Module settings, and Table C-6 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 C-3. Action Panel - Output Module Settings

Table C-6. Output Module Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
Module Selector			
Modules	PRR10	Selects which Output module to view the configuration for.	None.
Module-Specific Settings[2]			
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

Table C-6. Output Module Settings (Continued)

Setting/Button	NE	Description	COMMAND (parameter)[1]
Ports	PRR10	The port being compensated.	RTRV-PRMTR-COMP
Serial Number	PRR10	The serial number of the card.	RTRV-CONF

Note:

[1] 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.

[2] Module-Specific Settings apply specifically to the Output module specified by the Module Selector.

Reference Controller Settings

There are several reference controller-related settings that are configurable in this dialog box. Figure C-4 shows the layout of the action panel for Reference Controller settings, and Table C-7 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.
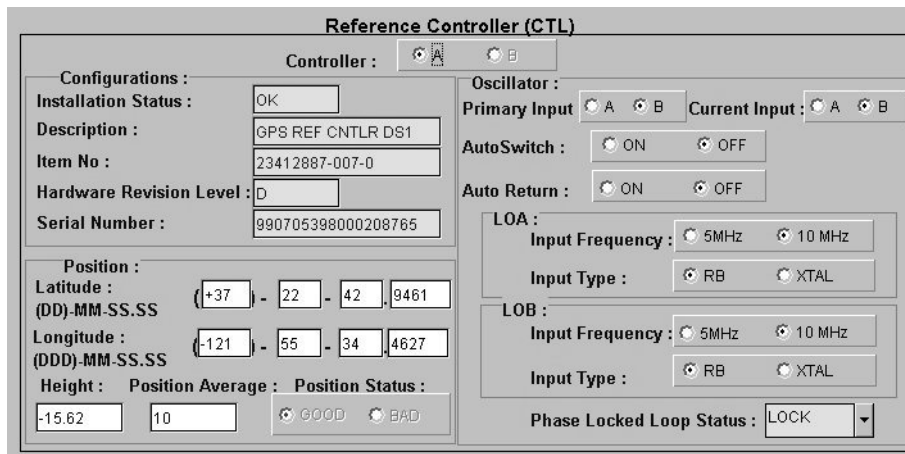
Figure C-4.   Action Panel - Reference Controller Settings

Table C-7. Reference Controller Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
Controller Selector			
Controller	PRR10	Selects which reference controller to view the configuration for.	RTRV-CONF
Controller-Specific Settings[2]			
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
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

Table C-7. Reference Controller Settings (Continued)

Setting/Button	NE	Description	COMMAND (parameter)[1]
Primary Input	PRR10	The primary input.	RTRV-PRMTR-OSC
Serial Number	PRR10	The serial number.	RTRV-CONF

Note:

[1] 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.

[2] Controller-Specific Settings apply specifically to the Reference controller specified by the Controller Selector.

Oscillator Module Settings

There are several oscillator module-related settings that are configurable in this dialog box. Figure C-5 shows the layout of the action panel for Oscillator Module settings, and Table C-8 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.
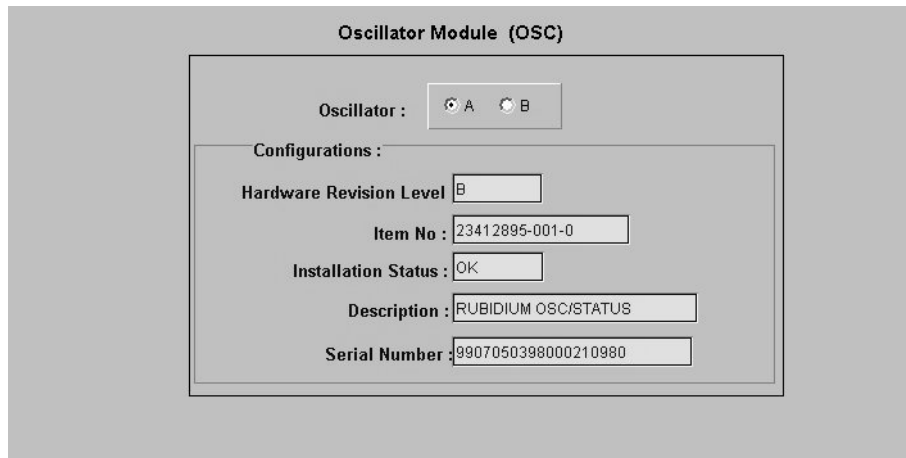
Figure C-5.   Action Panel - Oscillator Module Settings

Table C-8. Oscillator Module Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
Oscillator Selector			
Oscillator	PRR10	Selects which oscillator module to view the configuration for.	RTRV-CONF

Table C-8. Oscillator Module Settings (Continued)

Setting/Button	NE	Description	COMMAND (parameter)[1]
Oscillator-Specific Settings[2]			
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

Note:

[1] 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.

[2] 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. Figure C-6 and Figure C-7 show the layout of the action panel for Alarm Module settings, and Table C-9 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.
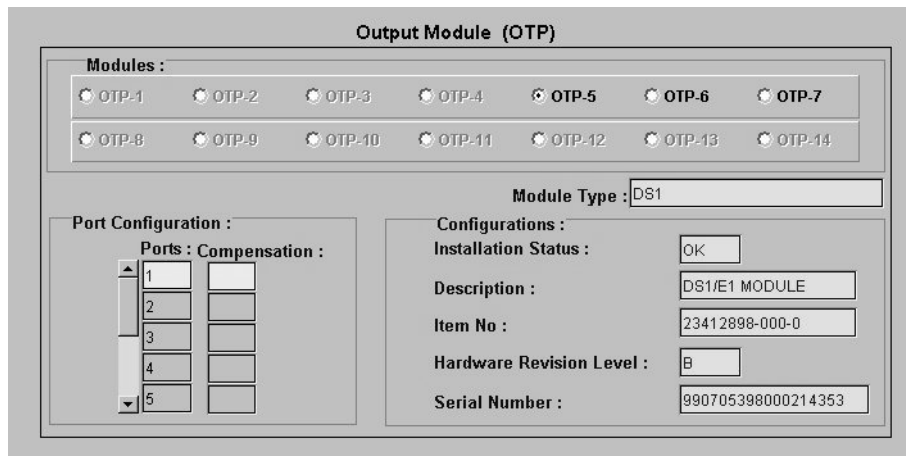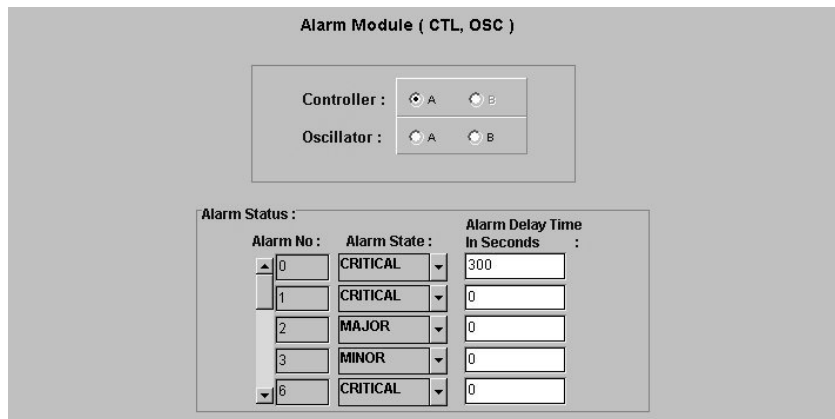

Figure C-6. Action Panel - Alarm Module Settings - Controller
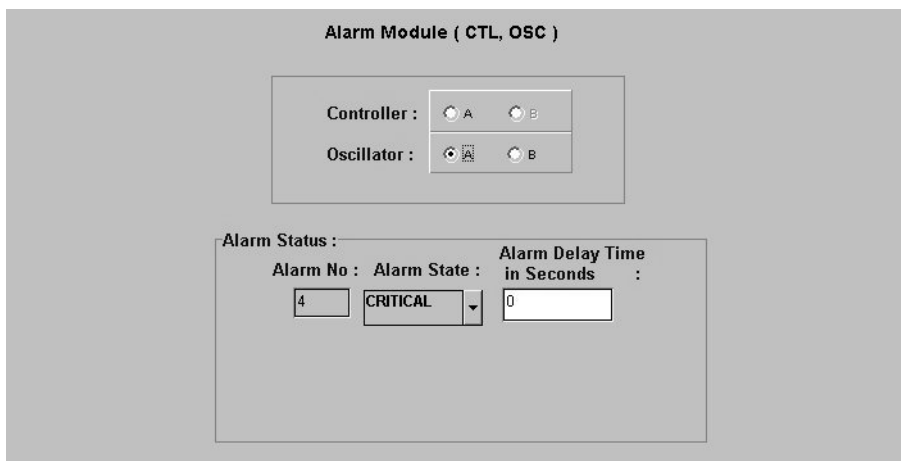
Figure C-7. Action Panel - Alarm Module Settings - Oscillator

Table C-9. Alarm Module Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
Module Selector			
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[2]			
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

Note:

[1] 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.

[2] Module-Specific Settings apply specifically to the Alarm module specified by the Module Selector.

Appendix D NE Information - TimeHub 5500

This chapter provides information and procedures that are specific to the TimeHub 5500 Network Element.

In This Appendix

- Network Element Status
- Network Element Settings
- Firmware Download

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 D-1 and Table D-1 briefly explain the Network Element Status Main Shelf dialog box.
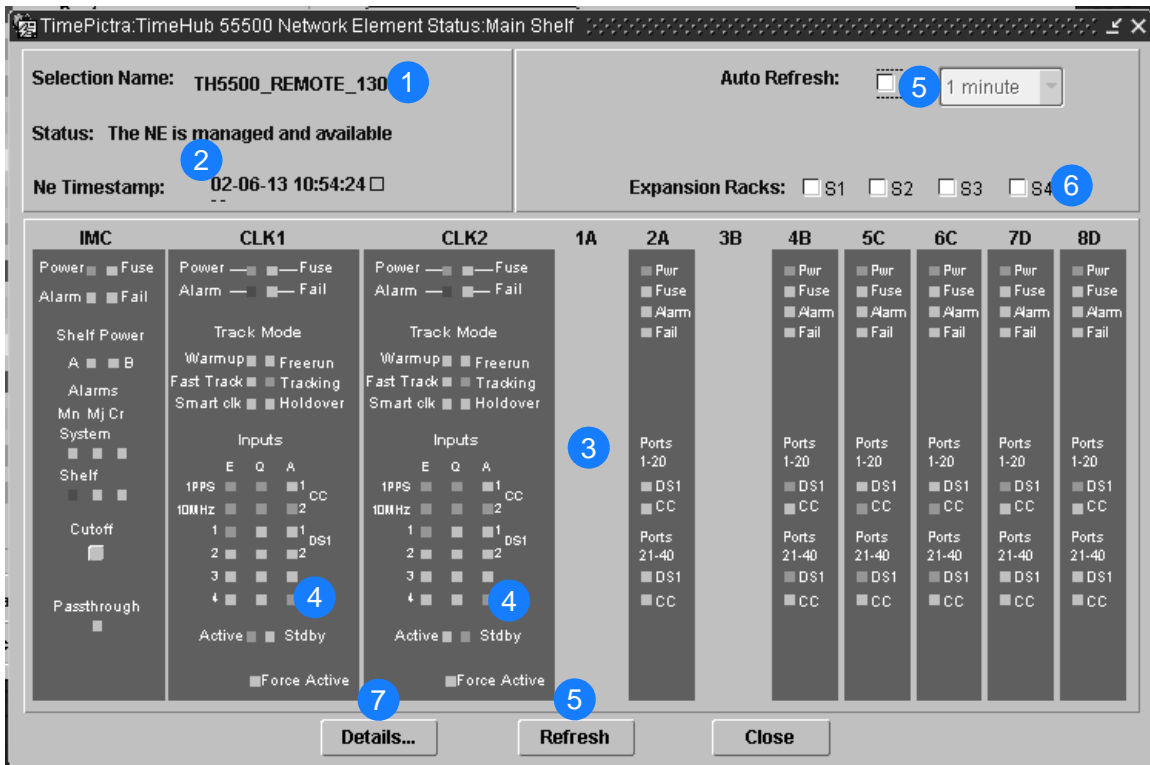
Figure D-1. Network Element Status Main Shelf Dialog Box

Table D-1. 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.
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 D-2 and Table D-2 briefly explain the Expansion Shelf Status dialog box.
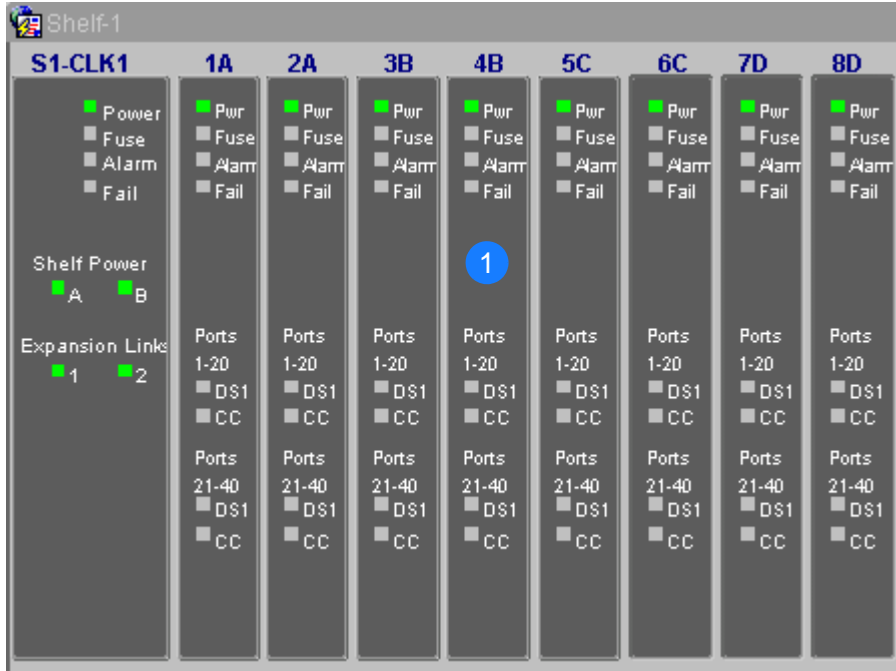
Figure D-2.   Expansion Shelf Status Dialog Box

Note: To see the entire shelf, you must have a minimum screen resolution of 1024 by 768.

Table D-2. 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.

Status Panel Indicator Descriptions

The following tables briefly explain the status indicators shown for each card in the NE. Table D-3 explains the status indicators shown for the IMC card.

Table D-3. 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[1]	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[1] (System)	When off, no minor alarms exist outside the shelf. When red, a minor alarm condition exists outside the shelf.
Mj[1] (System)	When off, no major alarms exist outside the shelf. When red, a major alarm condition exists outside the shelf.
Cr[1] (System)	When off, no critical alarms exist outside the shelf. When red, a critical alarm condition exists outside the shelf.
Mn[1] (Shelf)	When off, no minor alarms exist within the shelf. When red, a minor alarm condition exists within the shelf.
Mj[1] (Shelf)	When off, no major alarms exist within the shelf. When red, a major alarm condition exists within the shelf.
Cr[1] (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.

Note:

¹ 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 D-4 explains the status indicators shown for the Clock cards.

Table D-4. 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.
Alarm¹	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.

Table D-4. Clock Card Status Indicators (Continued)

Indicator	Description
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.
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.

Note:

[1] Click this indicator when it is lit to display more information on the alarms related to it.

Table D-5 explains the status indicators shown for the Output cards

Table D-5. 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[1]	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.

Table D-5. Output Card Status Indicators (Continued)

Indicator	Description
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.
Ports 21-40 CC	When off, the output driver card is not providing CC output signals on ports 21 through 40. When green, the output driver card is providing CC output signals on ports 21 through 40.

Note:
[1] 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 D-3 shows the layout of the action panel for Network Element settings, and Table D-6 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 D-3.   Action Panel – Network Element Settings

Table D-6. Network Element Settings

Setting/Button	Card	Description	Command/Keyword[1]
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)

Table D-6. Network Element Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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

Note:

[1] 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 D-4 shows the layout of the action panel for IMC Card settings, and Table D-7 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 D-4.   Action Panel – IMC Card Settings

Table D-7. IMC Card Settings

Setting/Button	Card	Description	Command/Keyword[1]
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)
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)

Note:

[1] 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 D-5 shows the layout of the action panel for Clock Card settings, and Table D-8 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.
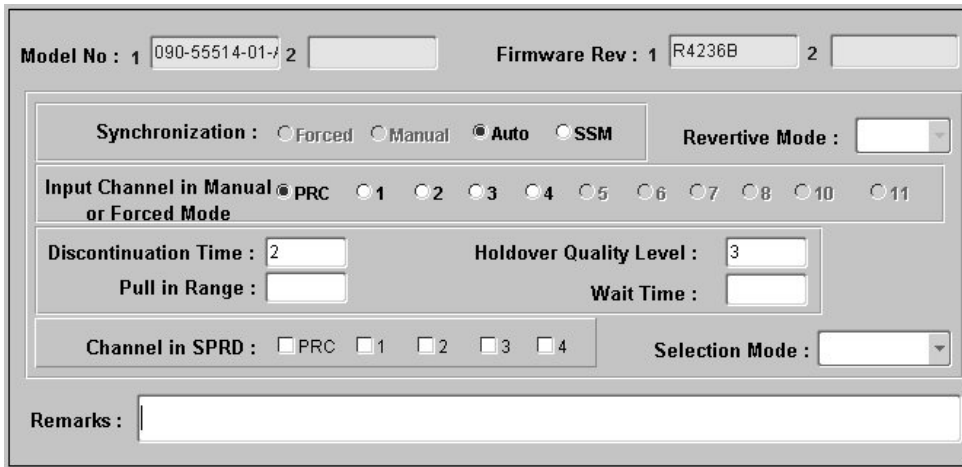
Figure D-5.   Action Panel – CLK Card Settings

Table D-8. CLK Card Settings

Setting/Button	Card	Description	Command/Keyword[1]
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)

Table D-8. CLK Card Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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)
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)

Note:

[1] 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. Figure D-6 and Figure D-7 show the layout of the action panel for the CLK-1 through CLK-4 (or CLK-8) and PRC input settings, and Table D-9 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 D-6.   Action Panel - Input Settings – Inputs CLK-1 through CLK-8

Figure D-7.   Action Panel – Input Settings – PRC Input

Table D-9. Input Settings

Setting/Button	Card	Description	Command/Keyword[1]
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[2]			
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)

Table D-9. Input Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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.	TCONSTSEC (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)

Note:

[1] 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.

[2] 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 D-8 shows the layout of the action panel for Output settings, and Table D-10 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 D-8. Action Panel – Output Settings

Table D-10. Output Settings

Setting/Button	Card	Description	Command/Keyword[1]
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 "S1," "S2," "S3," and "S4" radio buttons are 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[2]			
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 D-10. Output Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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[3]			
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[4]			
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

Note:

[1] 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.

[2] Card-Specific Settings apply specifically to the output card specified by the Card Selector.

[3] Port Group-Specific Settings apply specifically to the port group specified by the Port Group Selector.

[4] 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 D-9 shows the layout of the action panel for the threshold settings, and Table D-11 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.
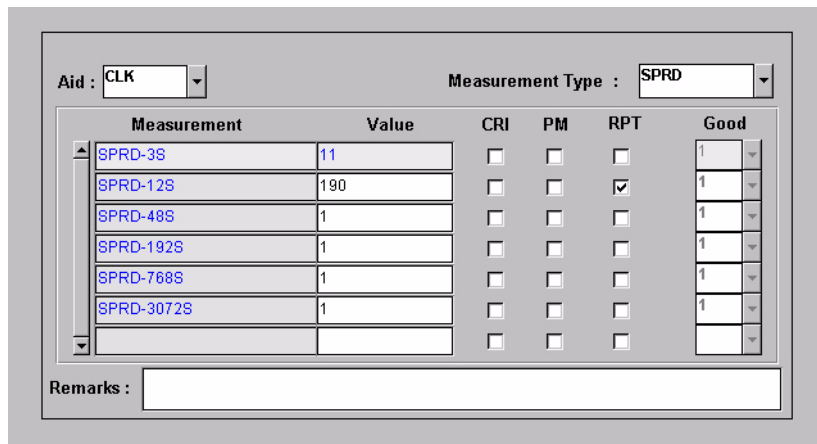
Figure D-9. Action Panel – Threshold Settings

Table D-11. Threshold Settings

Setting/Button	Description	Command/Keyword[1]
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

Table D-11. Threshold Settings (Continued)

Setting/Button	Description	Command/Keyword[1]
Channel-Specific Settings[2]		
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)

Note:

[1] 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.

[2] 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 D-10 shows the layout of the action panel for Event settings, and Table D-12 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 D-10. Action Panel – Event Settings

Table D-12. Event Settings

Setting/Button	Description	Command/Keyword[1]
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

Note:

[1]   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 D-11 shows the layout of the action panel for TL1 Command settings, and Table D-13 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.
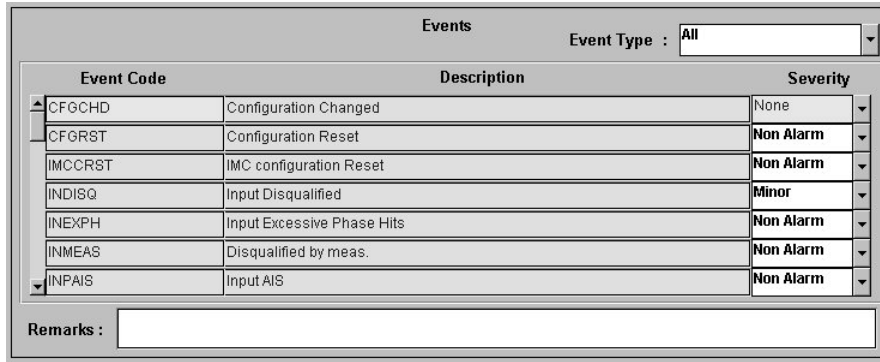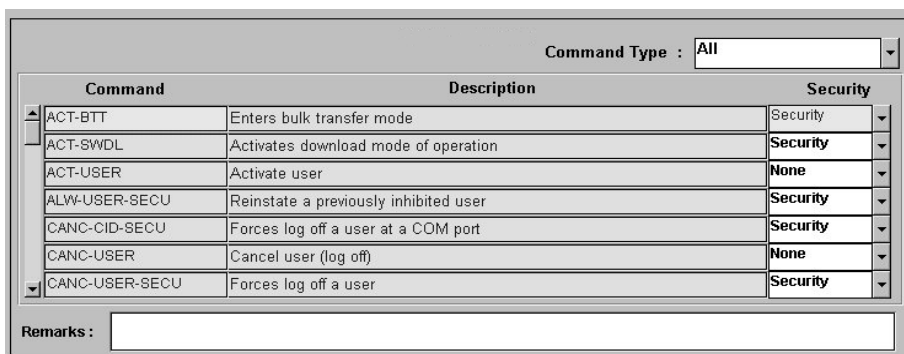

Figure D-11. Action Panel – TL1 Command Settings

Table D-13. TL1 Command Settings

Setting/Button	Description	Command/Keyword[1]
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)
Remarks	A text field for entering notes (remarks) concerning the command settings. *(TimePictra database only)*	None

Note:

[1] 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 the following procedure 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 the procedure in

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.

The following procedure explains how to download firmware.

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:

    a. The file should be stored in the /var/opt/osmf/share/log directory. It is not acceptable to use symbolic links.

    b. Record the file name as well as the full directory path to the file. You will need to enter it in the procedure.

    c. Ensure the Security-class user (sec) is the owner of the firmware file and has read permission on the file.

    d. 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.

    e. 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.

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, on page 377. If a portion of the file is to be downloaded, change those fields as follows:

    a. 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.

    b. 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.

9. Begin the firmware download process using either automatic or manual mode:

    Note: Firmware Download, on page 374 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, on page 378.

- If the Firmware Download process fails, go to the procedure in Failure Recovery, on page 380. 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 the procedure in Continue the Firmware Download Process After an Interruption, on page 378. 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.

Continue the Firmware Download Process After an Interruption

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.

The following procedure assumes that the firmware download process was interrupted.

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 <u>F</u>irmware Download... from the <u>C</u>onfig 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).

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, on page 380.

– If the Firmware Download process fails, go to the procedure in Failure Recovery, on page 380. 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 the procedure in Download Firmware, on page 375.

Failure Recovery

The recovery process detailed in the following procedure 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.

Note: Users of the Security class can perform this procedure.

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.

Appendix E NE Information - 55400/55409

This chapter provides information and procedures that are specific to the 55400/55409 Network Element.

Note: Please ensure that there is no space in the SID of a 55400 NE, otherwise alarms cannot be parsed correctly and you will not see new alarms in the Alarm-Viewer window.

Note: It is a mandatory security requirement in TimePictra that 55400 units have their security enabled. If security is not enabled, a 55400 cannot be managed from TimePictra. To enable security, 'S4 switch 1' for 'Security Mode' must be enabled.

In This Appendix

- Network Element Status
- Network Element Settings
- Firmware Download

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 E-1 and Table E-1 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.

To view the item number of an output card, left-click on the item number, then roll the cursor over the item number. A pop-up appears, making it easier to read the item number.
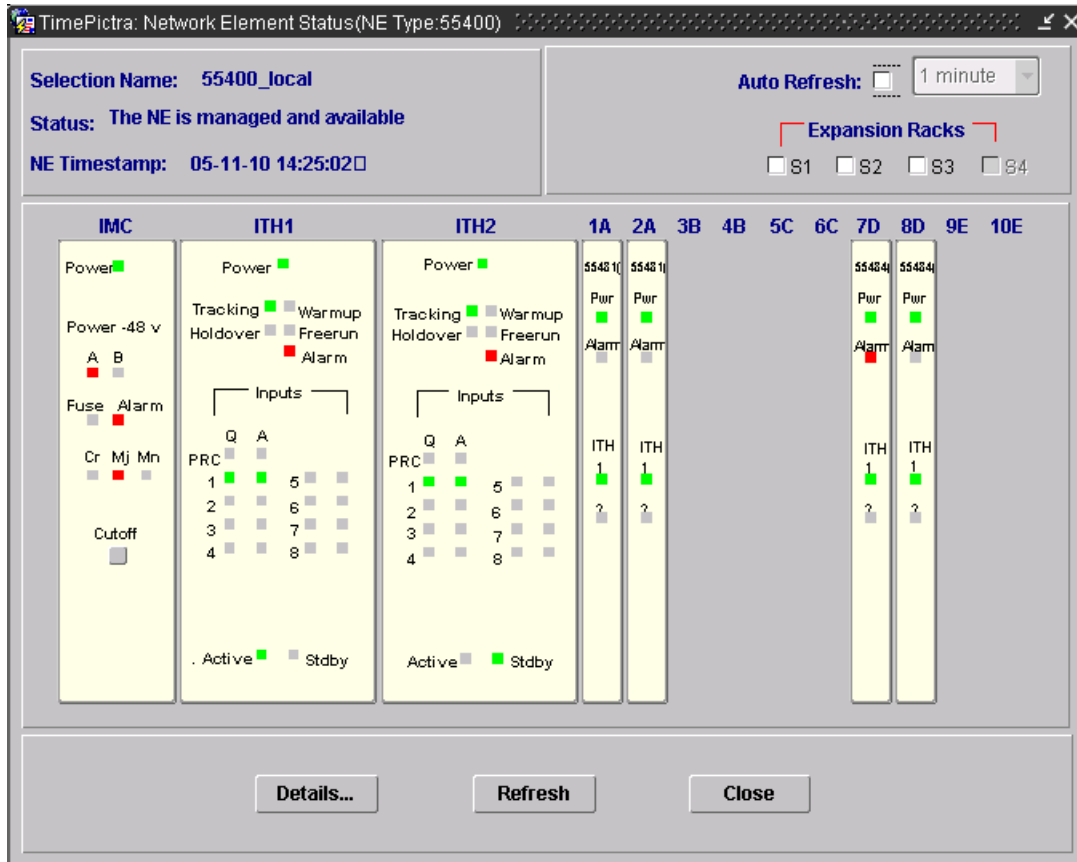
Figure E-1.   Network Element Status Dialog Box

Table E-1. 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 E-1. Network Element Status Dialog Box Description (Continued)

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.
Details...	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, 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.

Details dialog box

Click Details... in the Element Status dialog box to display the Status Details window, as shown in Figure E-2. This dialog box contains four tabs:

- RTRV-NETYPE-ALL Output – contains information on the NE, including CLLI code, NE type, IP address and communication protocol, and the AID, model number, and firmware revision for each card installed in the NE.

- RTRV-COND Output – contains a list of each ITH card installed in the NE, it's AID, and any alarm or event code associated with that card.

- Performance – lists performance data for each ITH card installed in the NE.

- Input SSM – lists the current SSM for each ITH card installed in the NE.
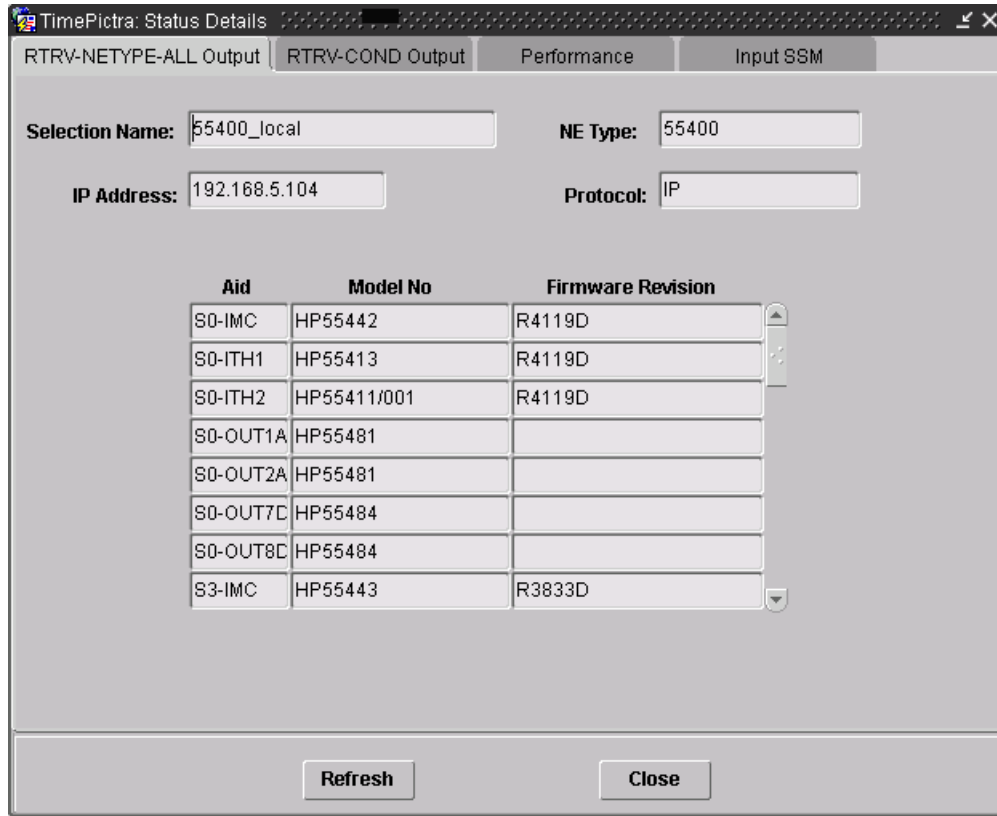
Figure E-2.   Status Details Dialog Box

Status Panel Indicator Descriptions

The following tables briefly explain the status indicators shown for each card in the NE:

Table E-2 explains the status indicators shown for the IMC card.

Table E-2. IMC Card Status Indicators

Indicator	Description
Alarm[1][2]	When off, no alarm condition exists in the selected NE. When red, an alarm condition exists in the selected NE.
Mn[1]	When off, no minor alarm exists on the selected NE. When red, a minor alarm condition exists on the selected NE.
Mj[1]	When off, no major alarm exists on the selected NE. When red, a major alarm condition exists on the selected NE.
Cr[1]	When off, no critical alarm exists on the selected NE. When red, a critical alarm condition exists on the selected NE.

Table E-2. IMC Card Status Indicators (Continued)

Indicator	Description
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.

Note:

[1] Click this indicator when it is lit to display more information on the alarms related to it.

[2] TRSC card alarms currently have a Non-Alarm severity level, so these alarms will not be reported by this indicator.

Table E-3 explains the status indicators shown for the ITH cards.

Table E-3. ITH Card Status Indicators

Indicator	Description
Alarm[1]	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.
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.

Table E-3. ITH Card Status Indicators (Continued)

Indicator	Description
Active[2]	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.

Note:

[1] Click this indicator when it is lit to display more information on the alarms related to it.

[2] 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 E-4 explains the status indicators shown for the Output cards.

Table E-4. Output Card Status Indicators

Indicator	Description
Pwr	When off, power is not present. When green, power is present.
Alarm[1]	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 E-4. Output Card Status Indicators (Continued)

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.

Note:

  [1] 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. To open this dialog box, select **Config**, **Modify Configuration** from the Launchpad. The View Configuration dialog box is essentially identical, except that 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.
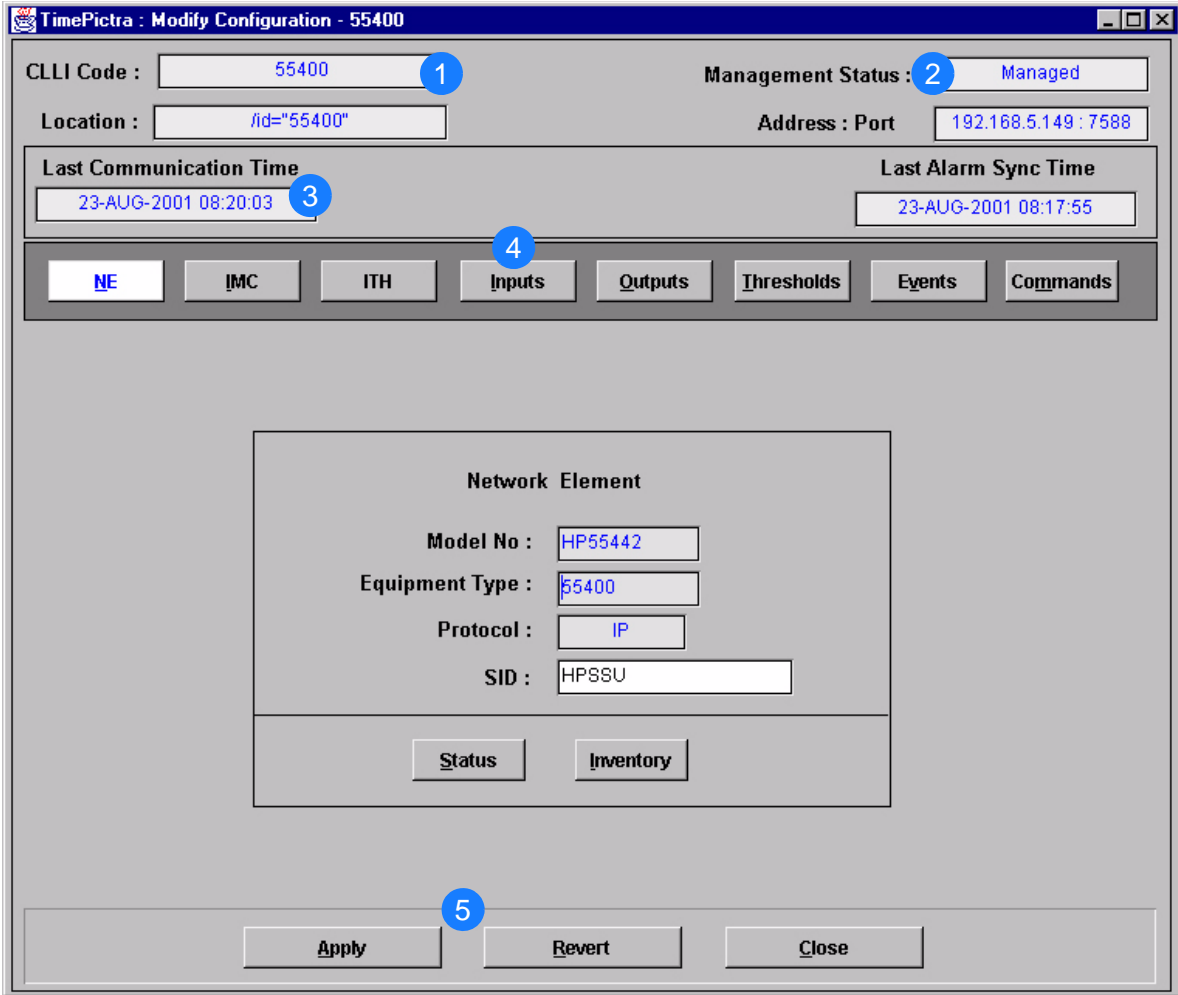
Figure E-3.   Modify Configuration Dialog Box

Table E-5. 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.

Table E-5. Configuration:Modify Dialog Box Description (Continued)

Item	Description
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.
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. To display the Network Element settings, click the NE context-switch button on the Modify Configuration dialog box. Figure E-4 shows the layout of the action panel for Network Element settings, and Table E-6 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 E-4.   Action Panel – Network Element Settings

Table E-6. Network Element Settings

Setting/Button	Card	Description	Command/Keyword[1]
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

Note:

[1] 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. To display the IMC settings, click the IMC context-switch button on the Modify Configuration dialog box. There are several IMC Card settings pertaining to the local serial data port that are configurable in this dialog box. Figure E-5 shows the layout of the action panel for IMC Card settings, and Table E-7 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 E-5.   Action Panel – IMC Card Settings

Table E-7. IMC Card Settings

Setting/Button	Card	Description	Command/Keyword[1]
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 E-7. IMC Card Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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.	

Note:

[1] 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.

To display the ITH settings, click the ITH context-switch button on the Modify Configuration dialog box. There are several ITH card settings that are configurable in this dialog box. Figure E-6 shows the layout of the action panel for ITH Card settings, and Table E-8 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.
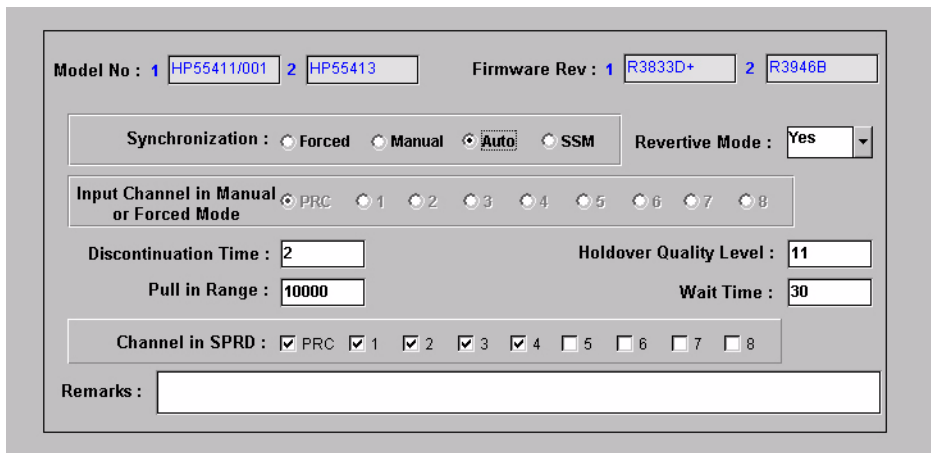

Figure E-6.   Action Panel – ITH Card Settings

Table E-8. ITH Card Settings

Setting/Button	Card	Description	Command/Keyword[1]
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)

Table E-8. ITH Card Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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)

Note:

[1]   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.

To display the Input settings, click the Inputs context-switch button on the Modify Configuration dialog box. There are several settings related to the selection, qualification and measurement of reference input signals that are configurable in this dialog box, and Table E-9 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 E-7.   Action Panel – Input Settings: Inputs ITH-1 through ITH-8

Figure E-8.   Action Panel – Input Settings: PRC Input

Table E-9. Input Settings

Setting/Button	Card	Description	Command/Keyword[1]
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[2]			
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)

Table E-9. Input Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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. 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)

Table E-9. Input Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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)
Tracking Time Constant	Input	The first value (TCONST), 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 The Second value (TCONSTSEC) , sets the time constant for the secondary oscillator. It applies only to the secondary ITH card if different oscillator types are mixed on one system. If ITH cards use identical oscillators then TCONST will apply to both cards	TCONST/ TCONSTSEC (keyword)

Note:

[1] 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.

[2] *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.

To display the Output settings, click the Outputs context-switch button on the Modify Configuration dialog box. There are several Output card settings that are configurable in this dialog box. Figure E-9 shows the layout of the action panel for Output settings, and Table E-10 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 E-9.   Action Panel – Output Settings

Table E-10. Output Settings

Setting/Button	Card	Description	Command/Keyword[1]
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[2]			
AIS	Output	Specifies whether the selected Output card generates AIS, or the usual formatted signal.	AIS (keyword)
Firmware Rev.	Output	This field is blank since the output card has no firmware.	
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[3]			

Table E-10. Output Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
Squelch	Output	Specifies whether or not the selected output port is to be squelched.	SQUELCH (keyword)
Remarks	Output	A text field for entering notes (remarks) concerning the selected output port. *(TimePictra database only)*	None

Note:

[1] 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.

[2] *Card-Specific Settings* apply specifically to the output card specified by the Card Selector.

[3] *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.

To display the Threshold settings, click the Thresholds context-switch button on the Modify Configuration dialog box. The measurement threshold settings are configurable in this dialog box. Figure E-10 shows the layout of the action panel for the threshold settings, and Table E-11 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.
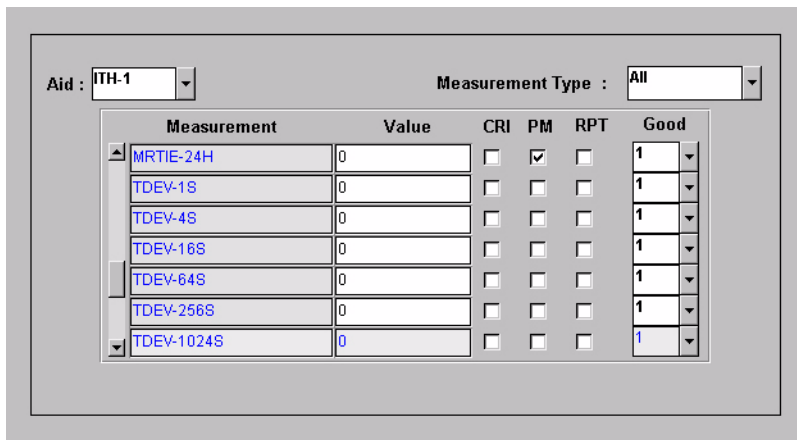
Figure E-10. Action Panel – Threshold Settings

Table E-11. Threshold Settings

Setting/Button	Card	Description	Command/Keyword[1]
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[2]			
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)

Table E-11. Threshold Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
PM		If selected, the data for the specified Averaging/Observation time is uploaded to the TimePictra software if Auto Upload is set. Refer to Auto Upload PM setting under Input Settings in this chapter.	ED-SYNC (command)
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)

Note:

[1] 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.

[2] *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.

To display the Events settings, click the Events context-switch button on the Modify Configuration dialog box. Events have default severity levels assigned to them, and the severity level of certain events can be changed in this dialog box. Figure E-11 shows the layout of the action panel for Event settings, and Table E-12 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.
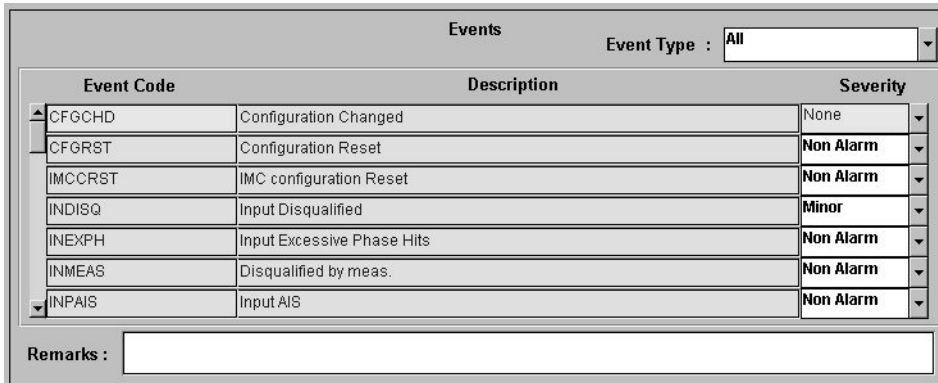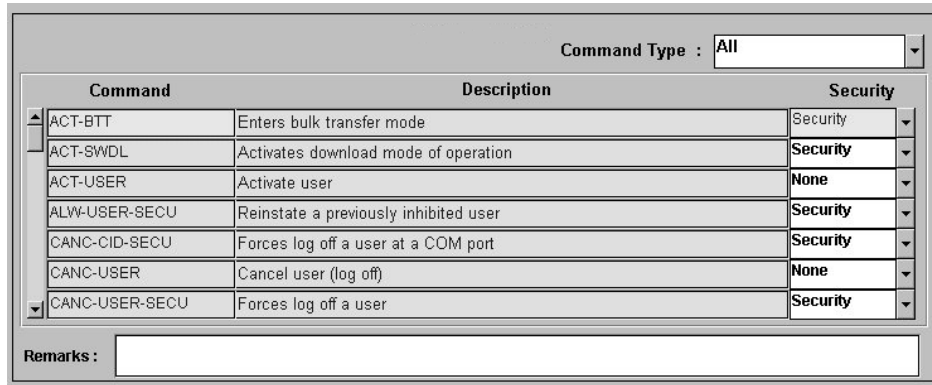

Figure E-11. Action Panel – Event Settings

Table E-12. Event Settings

Setting/Button	Card	Description	Command/Keyword[1]
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

Note:

[1] 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. To display the TL1 Command settings, click the Commands context-switch button on the Modify Configuration dialog box. The security level of certain commands can be changed in this dialog box. Figure E-12 shows the layout of the action panel for TL1 Command settings, and Table E-13 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 E-12. Action Panel – TL1 Command Settings

Table E-13. TL1 Command Settings

Setting/Button	Card	Description	Command/Keyword[1]
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
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

Note:

[1] 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 the following procedure 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 the procedure 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.

The following procedure explains how to download firmware.

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:

   a. The file should be stored in the /var/opt/osmf/share/log directory. It is not acceptable to use symbolic links.

   b. Record the file name as well as the full directory path to the file. You will need to enter it in the procedure.

   c. Ensure the Security-class user (sec) is the owner of the firmware file and has read permission on the file.

   d. 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.

   e. 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.

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.

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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, on page 412. 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.

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, on page 413.

If the Firmware Download process fails, go to the procedure in Failure Recovery, on page 415. 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 the procedure in Continue the Firmware Download Process After an Interruption, on page 413. 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.

Continue the Firmware Download Process After an Interruption

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.

The following procedure assumes that the firmware download process was interrupted.

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).

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

    If the Firmware Download process fails, go to the procedure in 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 the procedure in

Failure Recovery

The recovery process detailed in the following procedure 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.

> **Note:** Users of the Security class can perform this procedure.

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.

Appendix 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.

In This Appendix

- Network Element Status
- Network Element Settings

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.

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. Figure F-1, Figure F-2, Figure F-3, and Table F-1 briefly explain the Network Element Status dialog box for the NEs.
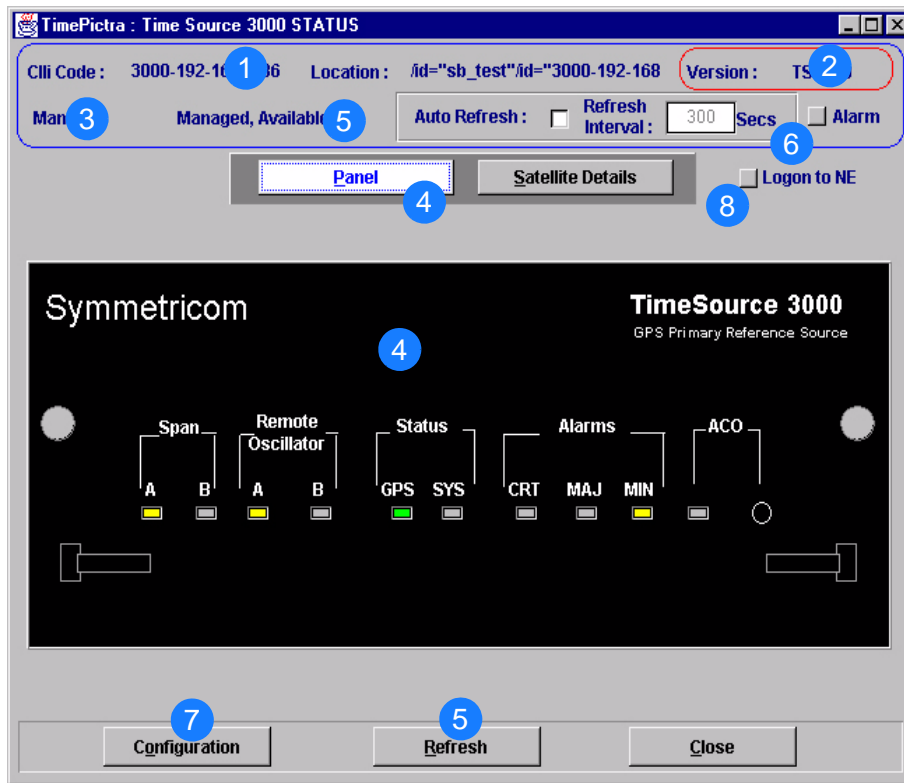
Figure F-1.   TS 3000 Network Element Status Dialog Box - Panel Details
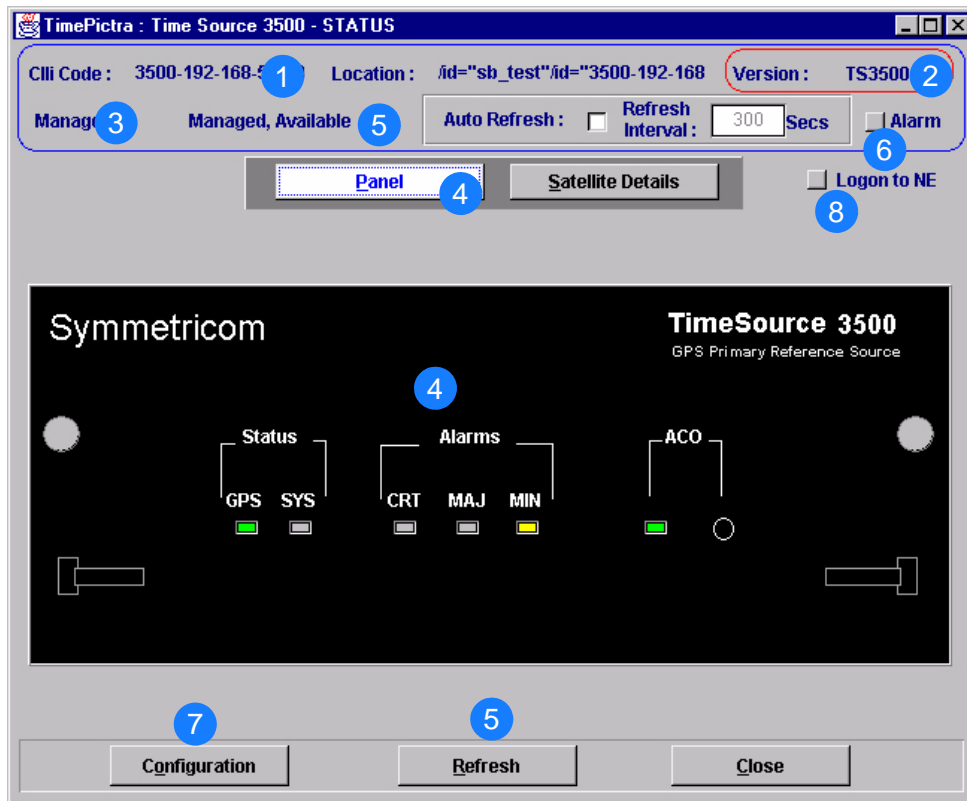
Figure F-2.   TS 3500 Network Element Status Dialog Box - Panel Details
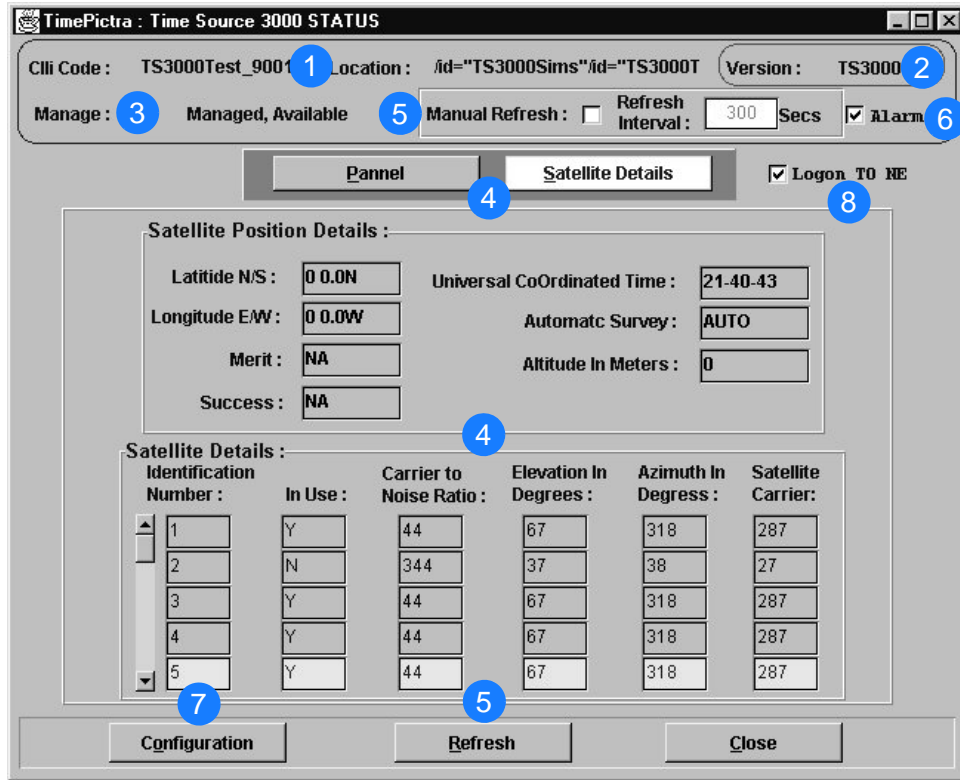
Figure F-3.   Network Element Status Dialog Box - Satellite Details (TS 3000 and 3500 are similar

Table F-1. 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 F-1. Network Element Status Dialog Box Description (Continued)

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 Figure F-1 and Figure F-2. 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 F-3.
	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.

Status Panel Indicator Descriptions

The following tables briefly explain the status indications shown for the NE.

Table F-2 explains the status indicators shown for the panel of the NE.

Table F-2. 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[1]	TS 3000 TS 3500	When off, there is no critical alarm. When red, a critical alarm has occurred because of a hardware failure.
MAJ[1]	TS 3000 TS 3500	When off, there is no major alarm. When red, the system has been in holdover for more than 24 hours.

Table F-2. Status Indicators - Panel View (Continued)

Indicator	NE	Description
MIN[1]	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.
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.

Note:

   [1]   Click this indicator when it is lit to display more information on the alarms related to it.

Table F-3 explains the satellite details.

Table F-3. 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.

Table F-3. Satellite Details (Continued)

Field	NE	Description
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. Figure F-4 and Figure F-5 show the layout of the action panel for Network Element settings, also referred to as the System Module settings. Table F-4 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 F-4.   Action Panel - Network Element Settings - TS 3000*

Figure F-5.   Action Panel - Network Element Settings - TS 3500

Table F-4. Network Element Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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)

Note:

[1] 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. Figure F-6 and Figure F-7 show the layout of the action panel for GPS settings. Table F-5 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 F-6.   Action Panel - GPS Settings - TS 3000

Figure F-7.   Action Panel - GPS Settings - TS 3500

Table F-5. GPS Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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)
Elevation[2]	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[2]	TS 3500	Latitude setting when Mode is MANUAL.	ED-EQPT (command)
Longitude[2]	TS 3500	Longitude setting when Mode is MANUAL.	ED-EQPT (command)

Note:

[1] 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.

[2] 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. Figure F-8 and Figure F-9 show the layout of the action panel for Input/Output settings. Table F-6 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.
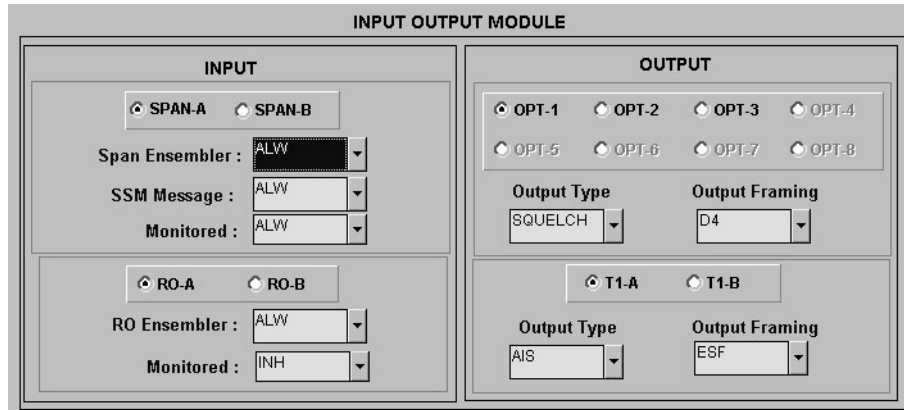
Figure F-8.   Action Panel - Input/Output Settings - TS 3000
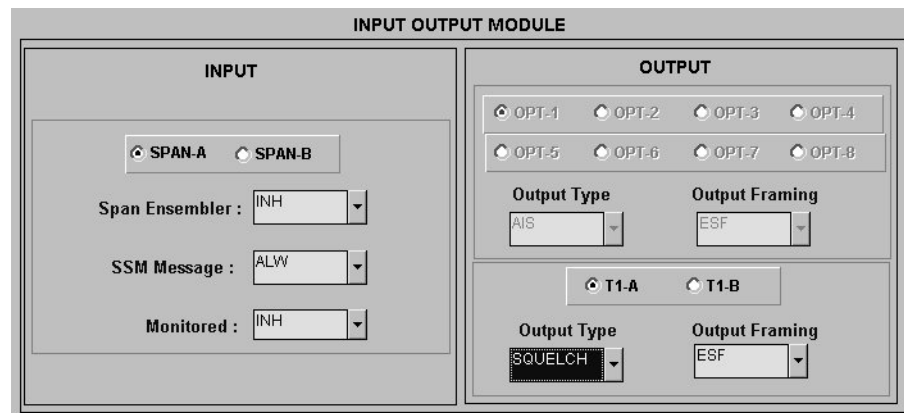
Figure F-9.   Action Panel - Input/Output Settings - TS 3500

Table F-6. Input/Output Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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[2]			
Span Ensembler	TS 3000 TS 3500	Determines whether or not the selected span input is ensembled.	ED-EQPT (command)

Table F-6. Input/Output Settings (Continued)

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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[3]			
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)
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[4]			
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)

Table F-6. Input/Output Settings (Continued)

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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[5]			
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)

Note:

[1] 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.

[2] *Span Input-Specific Settings* apply specifically to the span input specified by the Span Input Selector.

[3] *Remote Oscillator Input-Specific Settings* apply specifically to the remote oscillator input specified by the Remote Oscillator Input Selector.

[4] *Optional T1 Output-Specific Settings* apply specifically to the optional T1 output specified by the Optional T1 Output Selector.

[5] *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 F-10 shows the layout of the action panel for Communication Port settings. Table F-7 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.
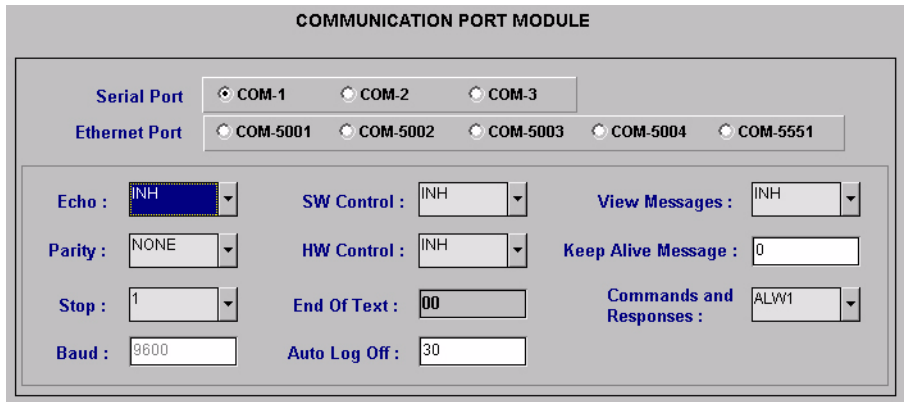
Figure F-10. Action Panel - Communication Port Settings - TS 3000 and TS 3500 Panel is Similar

Table F-7. Communication Port Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
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[2]			
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)
Baud[3]	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)

Table F-7. Communication Port Settings (Continued)

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
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[4]	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[3]	TS 3000 TS 3500	Sets either even or odd parity on the selected communication port.	ED-COM (command)
Stop[3]	TS 3000 TS 3500	Sets either one or two stop bits on the selected communication port.	ED-COM (command)
SW Control[4,5]	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)

Note:

[1] 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.

[2] *Communication Port-Specific Settings* apply specifically to the communication port specified by the Communication Port Selectors.

[3] Baud rate, parity, and stop bits can only be configured on serial communication ports (1, 2, and 3).

[4] Flow control is not implemented on communication port 3.

[5] XON/XOFF flow control is simulated for the Ethernet ports.

Appendix G NE Information – TimeSource 3100 and TimeSource 3600

This chapter provides information and procedures that are specific to the TimeSource 3100 and TimeSource 3600 Network Elements.

In This Appendix

- Network Element Status
- Network Element Settings

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. Figure G-1, Figure G-2, Figure G-3, and Table G-1 briefly explain the Network Element Status dialog box for the NEs.
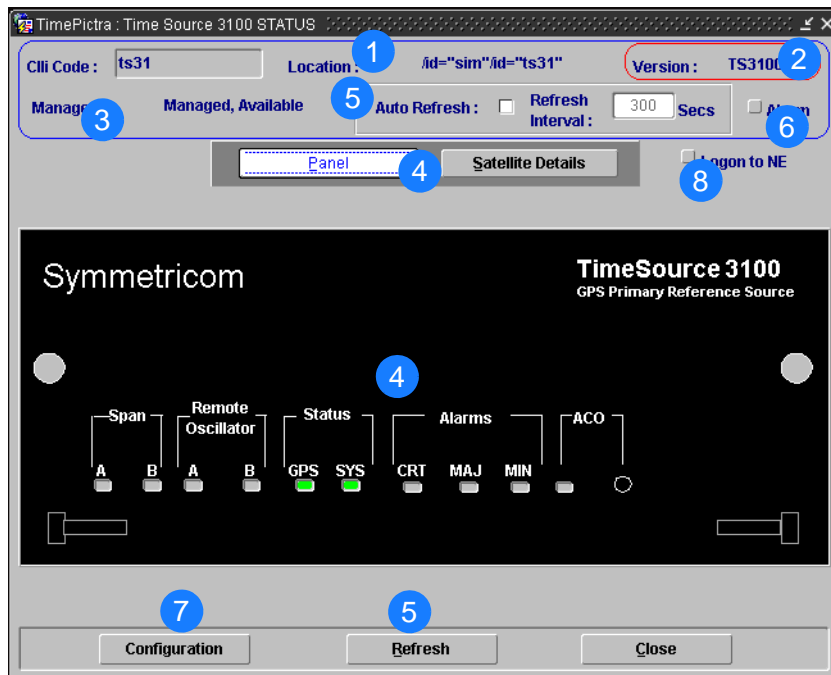
Figure G-1. TS 3100 Network Element Status Dialog Box – Panel Details
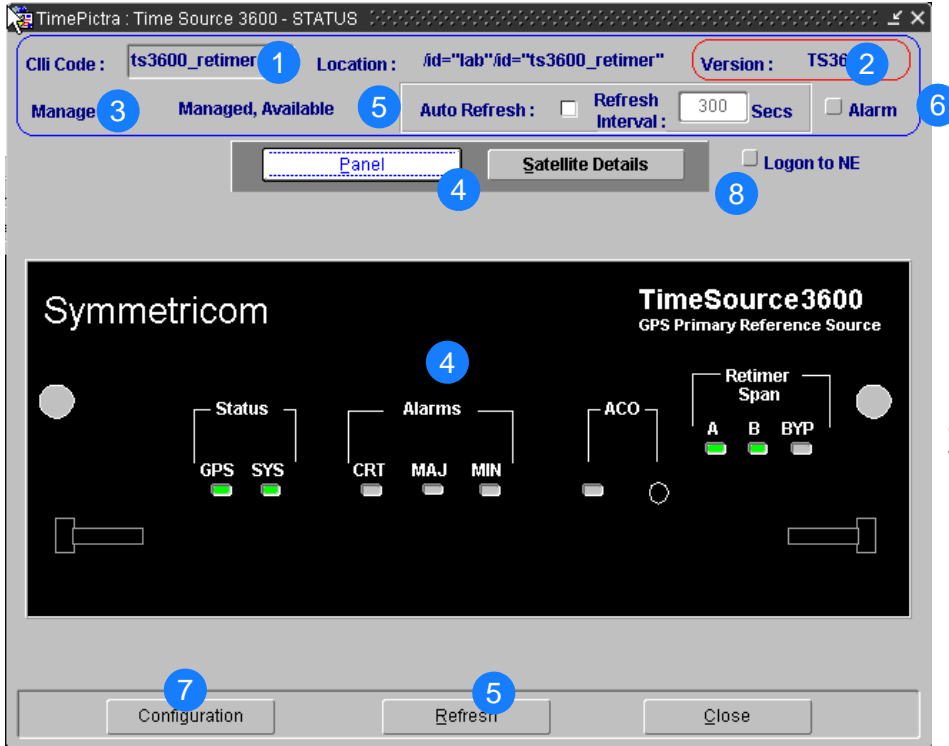
Figure G-2. TS 3600 Network Element Status Dialog Box – Panel Details
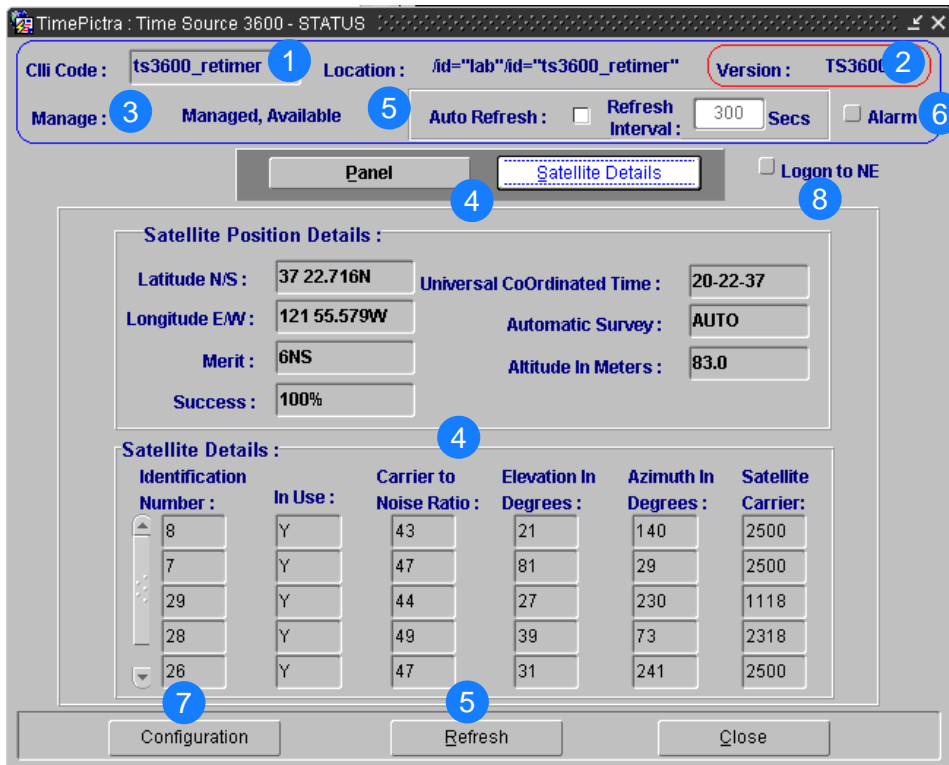
Figure G-3. Network Element Status Dialog Box – Satellite Details (TS 3100 and 3600 are similar)

Table G-1. 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.
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 Figure G-1 and Figure G-2. 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 G-3.
	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.

Status Panel Indicator Descriptions

The following tables briefly explain the status indications shown for the NE.

Table G-2 explains the status indicators shown for the panel of the NE.

Table G-2. 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.

Table G-2. Status Indicators - Panel View (Continued)

Indicator	NE	Description
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[1]	TS 3100 TS 3600	When off, there is no critical alarm. When red, a critical alarm has occurred because of a hardware failure.
MAJ[1]	TS 3100	When off, there is no major alarm. When red, the system has been in holdover for more than 24 hours.
MAJ[1]	TS 3600	When off, there is no major alarm. When red, the system has been in holdover for more than 72 hours.
MIN[1]	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.

Note:

[1] Click this indicator when it is lit to display more information on the alarms related to it.

Table G-3 explains the satellite details.

Table G-3. 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.

Table G-3. Satellite Details (Continued)

Field	NE	Description
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.
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.

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.

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. Figure and Figure G-4 show the layout of the action panel for Network Element settings, also referred to as the System Module settings. Table G-4 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.
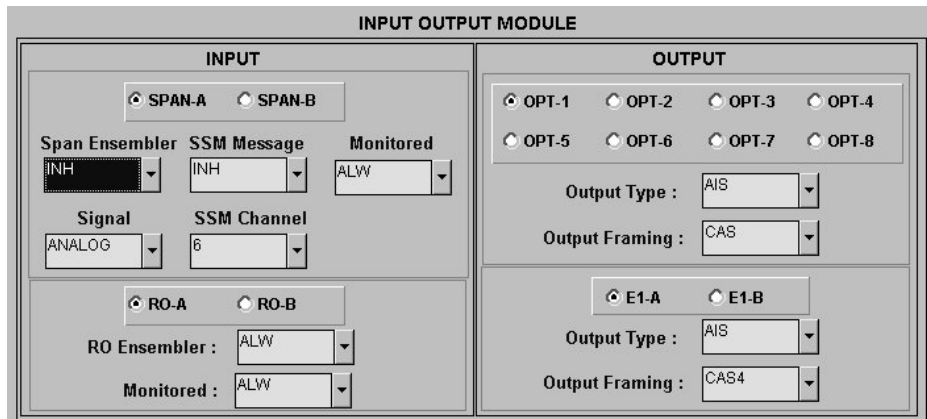

Action Panel – Network Element Settings – TS 3100

Figure G-4. Action Panel – Network Element Settings – TS 3600

Table G-4. Network Element Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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)

Table G-4. Network Element Settings (Continued)

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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)

Note:

[1] 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. Figure G-5 and Figure G-6 show the layout of the action panel for GPS settings. Table G-5 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.
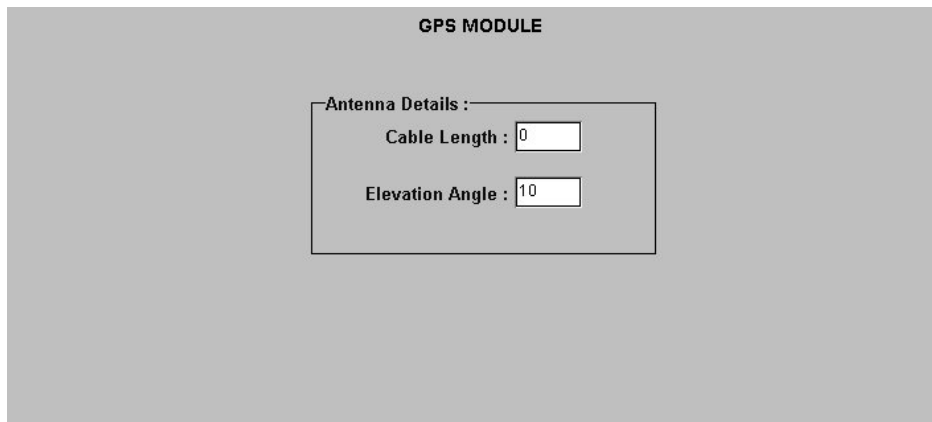
Figure G-5. Action Panel – GPS Settings – TS 3100
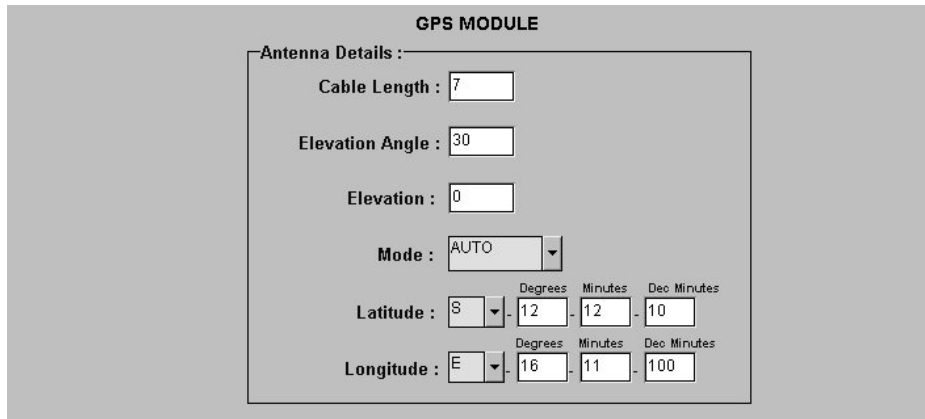
Figure G-6. Action Panel – GPS Settings – TS 3600

Table G-5. GPS Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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[2]	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[2]	TS 3600	Latitude setting when Mode is MANUAL.	ED-EQPT (command)
Longitude[2]	TS 3600	Longitude setting when Mode is MANUAL.	ED-EQPT (command)

Note:

[1] 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.

[2] 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.

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. Figure G-7 and Figure G-8 show the layout of the action panel for Input/Output settings. Table G-6 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 G-7. Action Panel – Input/Output Settings – TS 3100
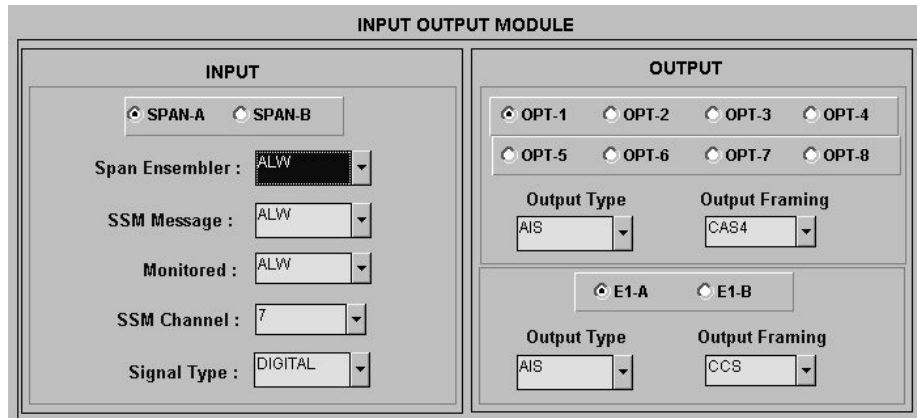
Figure G-8. Action Panel – Input/Output Settings – TS 3600

Table G-6. Input/Output Settings

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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[2]			
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
Remote Oscillator Input-Specific Settings[3]			
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)

Table G-6. Input/Output Settings (Continued)

Setting/Button	NE	Description	COMMAND/KEYWORD[1]
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[4]			
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[5]			
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)

Note:

[1] 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.

[2] *Span Input-Specific Settings* apply specifically to the span input specified by the Span Input Selector.

[3] *Remote Oscillator Input-Specific Settings* apply specifically to the remote oscillator input specified by the Remote Oscillator Input Selector.

[4] *Optional E1 Output-Specific Settings* apply specifically to the optional E1 output specified by the Optional E1 Output Selector.

[5] *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 G-9 shows the layout of the action panel for Communication Port settings. Table G-7 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 G-9. Action Panel – Communication Port Settings (TS 3100 and TS 3600 are similar)

Table G-7. Communication Port Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
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

Table G-7. Communication Port Settings (Continued)

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
Communication Port-Specific Settings[2]			
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[3]	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[4]	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[3]	TS 3100 TS 3600	Sets either even or odd parity on the selected communication port.	ED-COM (command)
Stop[3]	TS 3100 TS 3600	Sets either one or two stop bits on the selected communication port.	ED-COM (command)
SW Control[4,5]	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)

Note:

[1] 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.

[2] *Communication Port-Specific Settings* apply specifically to the communication port specified by the Communication Port Selectors.

[3] Baud rate, parity, and stop bits can only be configured on serial communication ports (1, 2, and 3).

[4] Flow control is not implemented on communication port 3.

[5] XON/XOFF flow control is simulated for the Ethernet ports.

Appendix H 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.

In This Appendix

- Network Element Status
- Network Element Settings

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 H-1 and Table H-1 briefly explain the Network Element Status dialog box.

Note: The Network Element Status dialog box shown in Figure H-1 is for the TSG 3800 version D. The Network Element Status dialog box for version E appears essentially identical.
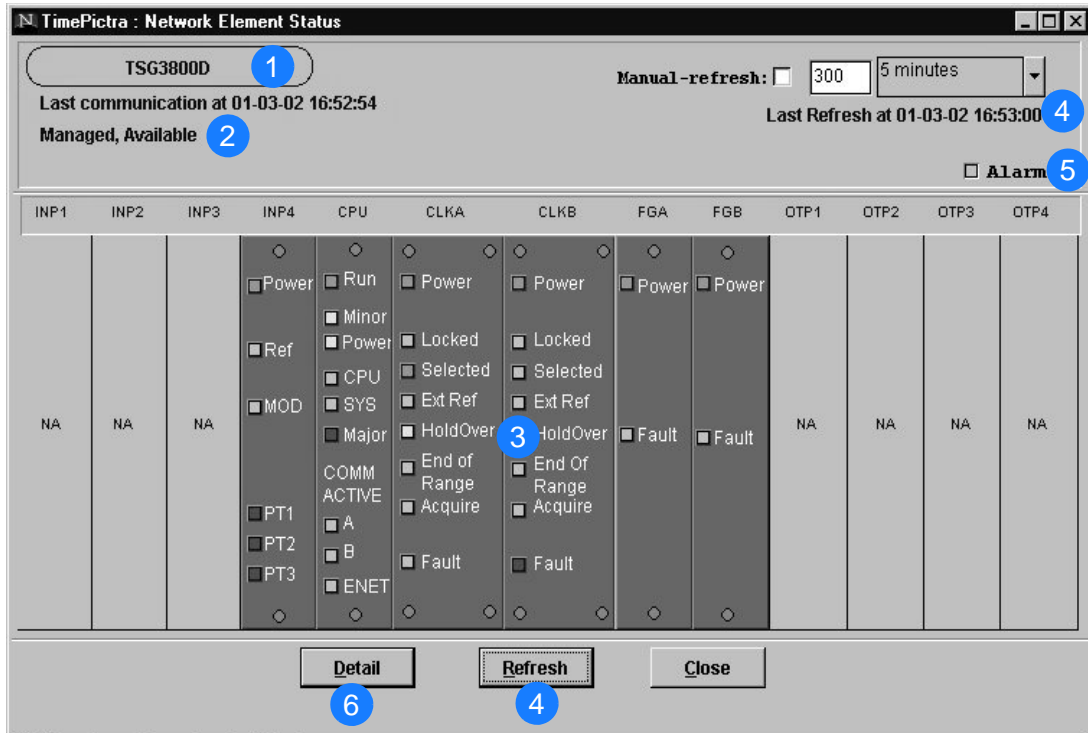
Figure H-1. Network Element Status Dialog Box

Table H-1. 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.
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.

Status Panel Indicator Descriptions

The following tables briefly explain the status indicators shown for each card in the NE.

> The status indicators explained in the following tables apply to both the TSG 3800 version D and TSG 3800 version E NEs.

Table H-2 explains the status indicators shown for the INP*X* boards.

> The X-Port input module is the only module supported in the current version of the TimePictra software.

Table H-2. INPX Board Status Indicators

Indicator	Description
Power[1]	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.

Note:
  [1]   Represented functionally in the display.

Table H-3 explains the status indicators shown for the CPU board.

Table H-3. CPU Board Status Indicators

Indicator	Description
Run[1]	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. This condition causes a major alarm.
SYS	When red, a hardware fault exists within the TSG system. 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. The indicator is green only during data transfer.
B (COMM ACTIVE)	When green, the rear panel RS-232 port is in use. The indicator is green only during data transfer.
ENET (COMM ACTIVE)	Ethernet packets are either transmitted or received.

Note:

[1] Represented functionally in the display.

Table H-4 explains the status indicators shown for the CLK*X* boards.

Table H-4. CLKX Board Status Indicators

Indicator[1]	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.

Table H-4. CLKX Board Status Indicators (Continued)

Indicator[1]	Description
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.

Note:
   [1] All indicators are represented functionally in the display.

Table H-5 explains the status indicators shown for the FG*X* boards.

Table H-5. FGX Board Status Indicators

Indicator	Description
Power[1]	When green, the module is receiving power.
Fault	When red and steady, a failure exists within the module. When red and blinking, the module is disabled.

Note:
   [1] Represented functionally in the display.

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.

Network Element Settings

There are some networking settings as well as input reference settings that are configurable in this dialog box. Figure H-2 and Figure H-3 show the layout of the action panel for Network Element settings, and Table H-6 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 H-2. Action Panel - Network Element Settings - TSG 3800 Version D

Figure H-3. Action Panel - Network Element Settings - TSG 3800 Version E

Table H-6. Network Element Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
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
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

Note:

[1] 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.

Input Settings

There are several input-related settings that are configurable in this dialog box. Figure H-4 and Figure H-5 show the layout of the action panel for Input settings, and Table H-7 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.
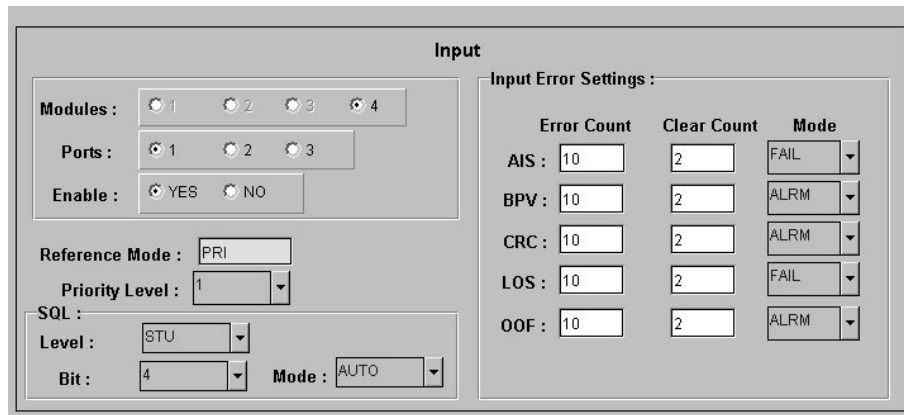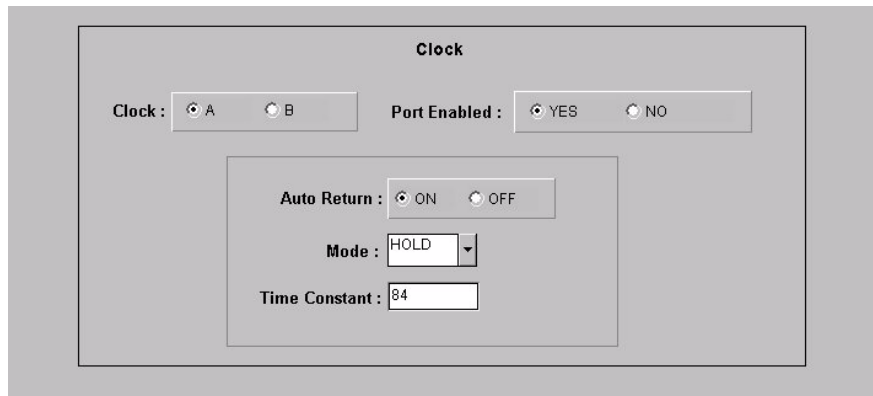

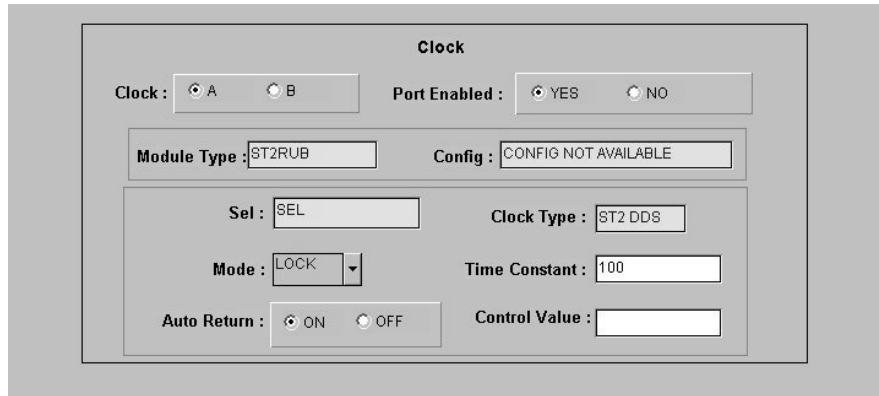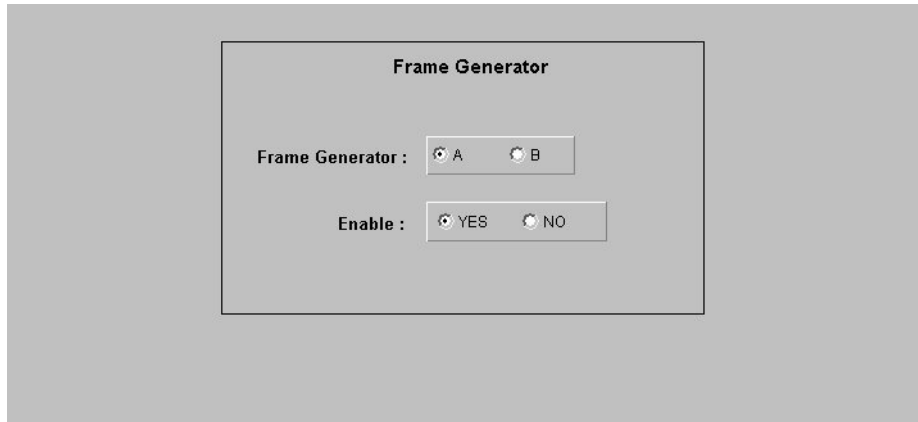*Figure H-4.   Action Panel - Input Settings - TSG 3800 Version D*
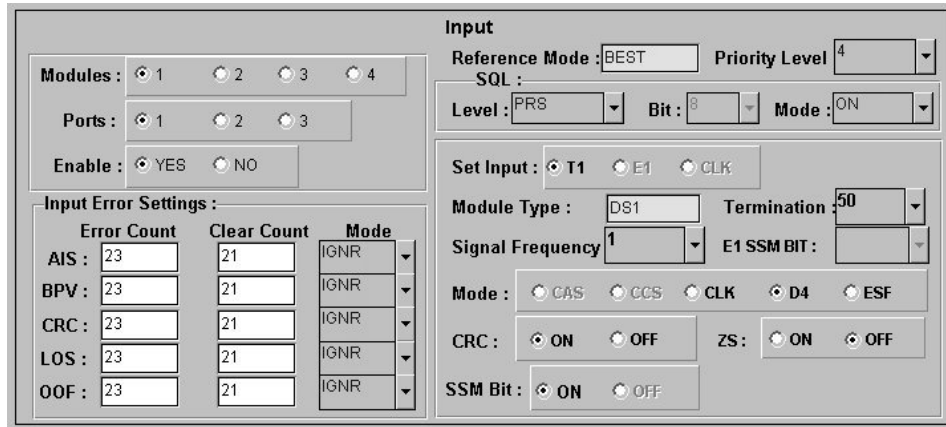
Figure H-5.   Action Panel - Input Settings - TSG 3800 Version E

Table H-7. Input Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
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[2]			
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

Table H-7. Input Settings (Continued)

Setting/Button	NE	Description	COMMAND (parameter)[1]
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
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

Note:

[1] 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.

[2] *Port-Specific Settings* apply specifically to the input port specified by the Module and Port Selectors.

Threshold Settings

There are several threshold-related settings that are configurable in this dialog box. Figure H-6 shows the layout of the action panel for Threshold settings, and Table H-8 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.
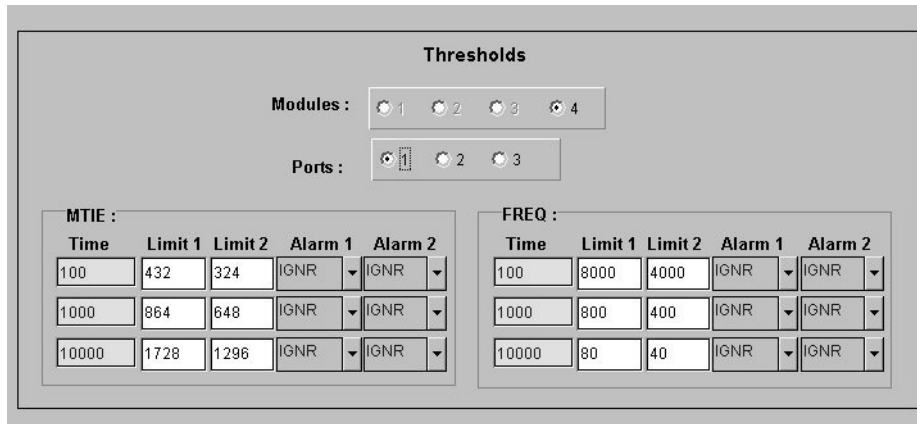
*Figure H-6.   Action Panel - Threshold Settings - TSG 3800 Versions D and E*

Table H-8. Threshold Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
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[2]			
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 H-8. Threshold Settings (Continued)

Setting/Button	NE	Description	COMMAND (parameter)[1]
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

Note:

1   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.

2   *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. Figure H-7 and Figure H-8 show the layout of the action panel for Clock settings, and Table H-9 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 H-7.   Action Panel - Clock Settings - TSG 3800 Version D

Figure H-8.   Action Panel - Clock Settings - TSG 3800 Version E

Table H-9. Clock Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
Clock Selector			
Clock	TSG 3800 D TSG 3800 E	Selects which clock to view the configuration for.	RTRV-PRMTR-CLK
Clock-Specific Settings[2]			
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

Note:

[1]   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.

[2]   *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. Figure H-9 and Figure H-10 show the layout of the action panel for Frame Generator settings, and Table H-10 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 H-9. Action Panel - Frame Generator Settings - TSG 3800 Version D
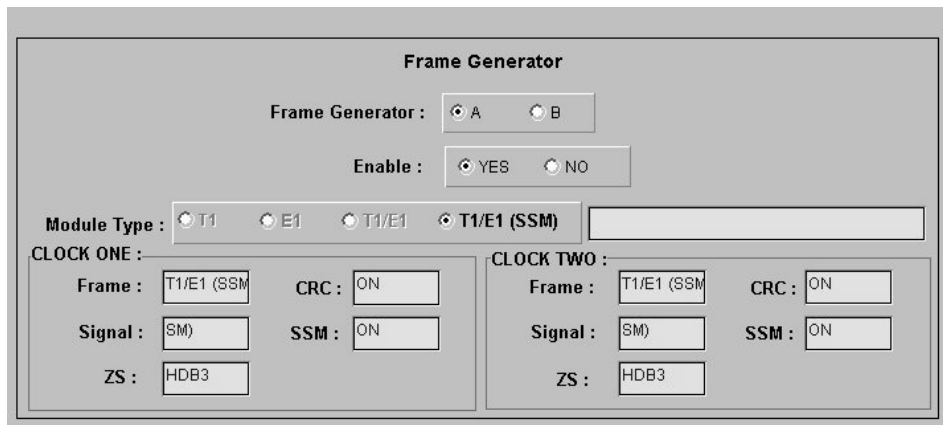
Figure H-10. Action Panel - Frame Generator Settings - TSG 3800 Version E

Table H-10. Frame Generator Settings

Setting/Button	NE	Description	COMMAND (parameter)[1]
Frame Generator Selector			
Frame Generator	TSG 3800 D TSG 3800 E	Selects which Frame Generator to view the configuration for.	RTRV-COND-EQPT

Table H-10. Frame Generator Settings (Continued)

Setting/Button	NE	Description	COMMAND (parameter)[1]
Frame-Generator-Specific Setting			
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

Note:

[1] 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.

Appendix I NE Information - SSU-2000

This chapter provides information and procedures that are specific to the SSU-2000 Network Element.

In This Appendix

- Network Element Status
- Network Element Settings
- Firmware Downloads
- SSU-2000 Alarm Messages

Network Element Status

The software contains dialog boxes that summarize the status of a selected SSU-2000 NE. The following provides more information on the SSU-2000 status dialog boxes.

Network Element Status dialog box

The Network Element Status dialog box presents a display which visually resembles the front panel of the selected NE. Figure I-1 briefly explains the Network Element Status dialog box for the SSU-2000.
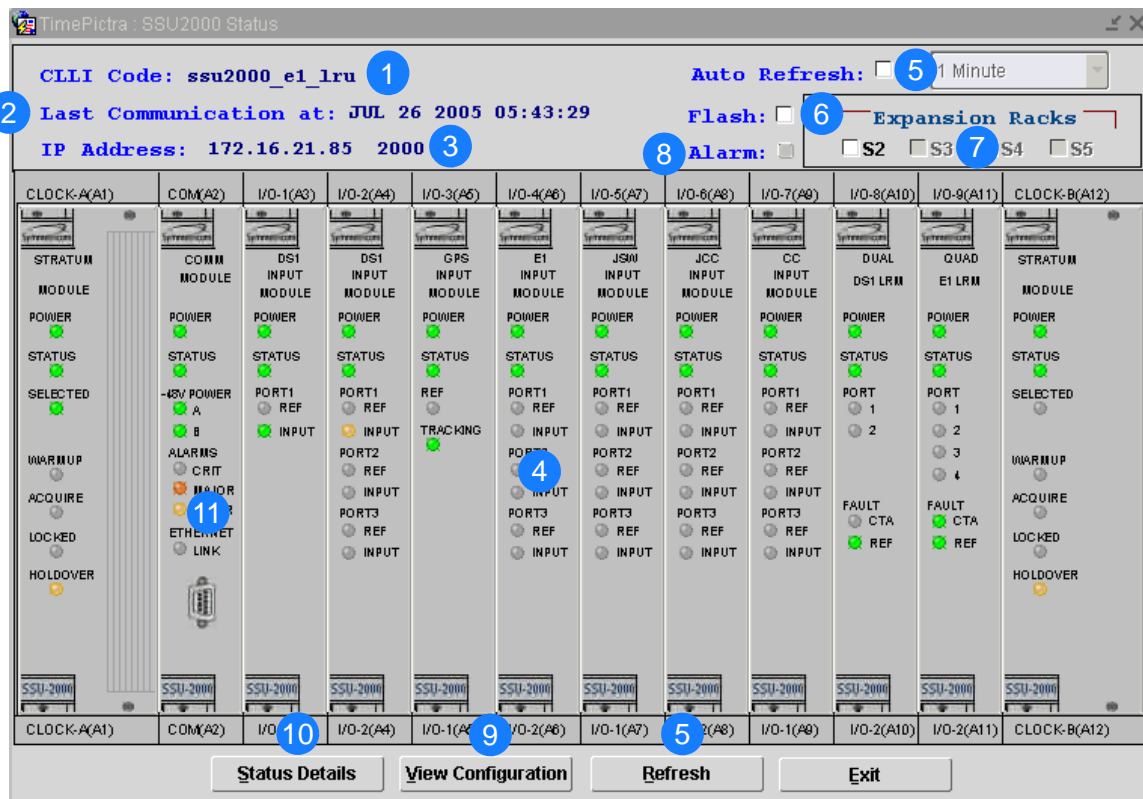
Figure I-1.   SSU-2000 Network Element Status Dialog Box

Table I-1. 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.

Table I-1. Network Element Status Dialog Box Description (Continued)

Item	Description
3	The IP Address field shows the IP address and port number over which TimePictra manages the NE.
4	This area functionally simulates the panel area of the selected NE. It shows the current status of the various indicators on the NE's front panel. *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.
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	Certain panel indicators on some of the cards flash to indicate that a condition is occurring. If the Flash check-box is selected, those indicators will also flash in the Network Element Status dialog box. If the Flash check-box is not selected, those indicators will not flash. *Note:* Refer to the section entitled Status Panel Indicator Descriptions, on page 480 for descriptions of each card's status indicators.
7	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.
8	Clicking the Alarm button invokes an instance of the Alarm Viewer dialog box which contains the alarms currently active in the NE.
9	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.

Table I-1. Network Element Status Dialog Box Description (Continued)

Item	Description
10	Clicking the Status Details button invokes the Status Details dialog box, which shows status details of the various cards in the NE. Refer to the section entitled Status Details dialog box, on page 472 for more information on the Status Details dialog box.
11	*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 Details dialog box

The Status Details dialog box shows status details for the cards in the NE. Status details for the various card types can be accessed by clicking on the tabs that are along the top of the dialog box.

Figure I-2 shows the Status Details dialog box when the Clock Cards tab is selected, and contains numbered call-outs that are referenced in Table I-2. Table I-2 briefly explains the Status Details dialog box for the SSU-2000. Figure I-3 through Figure I-9 show what is displayed in the dialog box when the other tabs are selected.
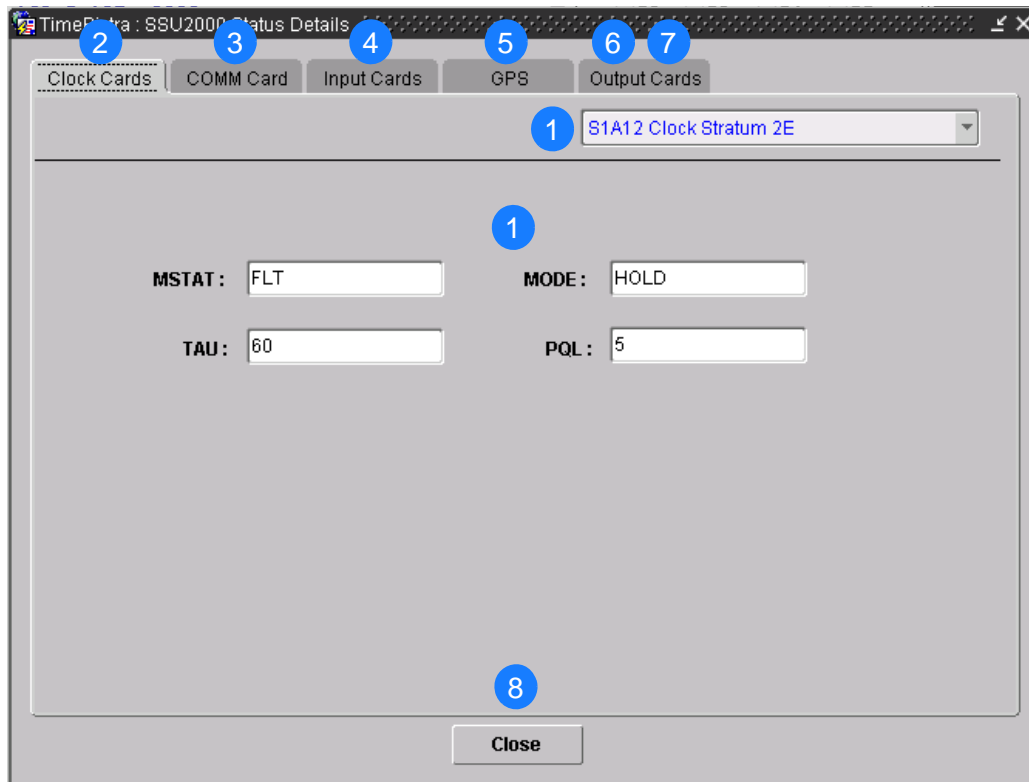
Figure I-2.   Status Details Dialog Box – Clock Cards

Figure I-3.   Status Details Dialog Box – COMM Card

Figure I-4.   Status Details Dialog Box – DS1 E1 and CC Input Cards

Clock Cards	COMM Card	Input Cards	GPS	Output Cards

S1A07 J/SW Input

AID	MSTATE	PSTATE	PHA	PHB	PQL	FREQA	FREQB
S1A07-01	OK	FLT	NA	NA	4	0	0
S1A07-02	OK	DIS	NA	NA	4	0	0
S1A07-03	OK	DIS	NA	NA	4	0	0

Figure I-5.   Status Details Dialog Box – J/SW Input Card

Clock Cards	COMM Card	Input Cards	GPS	Output Cards

S1A08 J/CC Input

AID	MSTATE	PSTATE	PHA	PHB	PQL
S1A08-01	OK	FLT	NA	NA	5

Figure I-6.   Status Details Dialog Box – J/CC Input Card

Figure I-7.   Status Details Dialog Box – GPS

Figure I-8.   Status Details Dialog Box – Output Cards (Non-LRU)
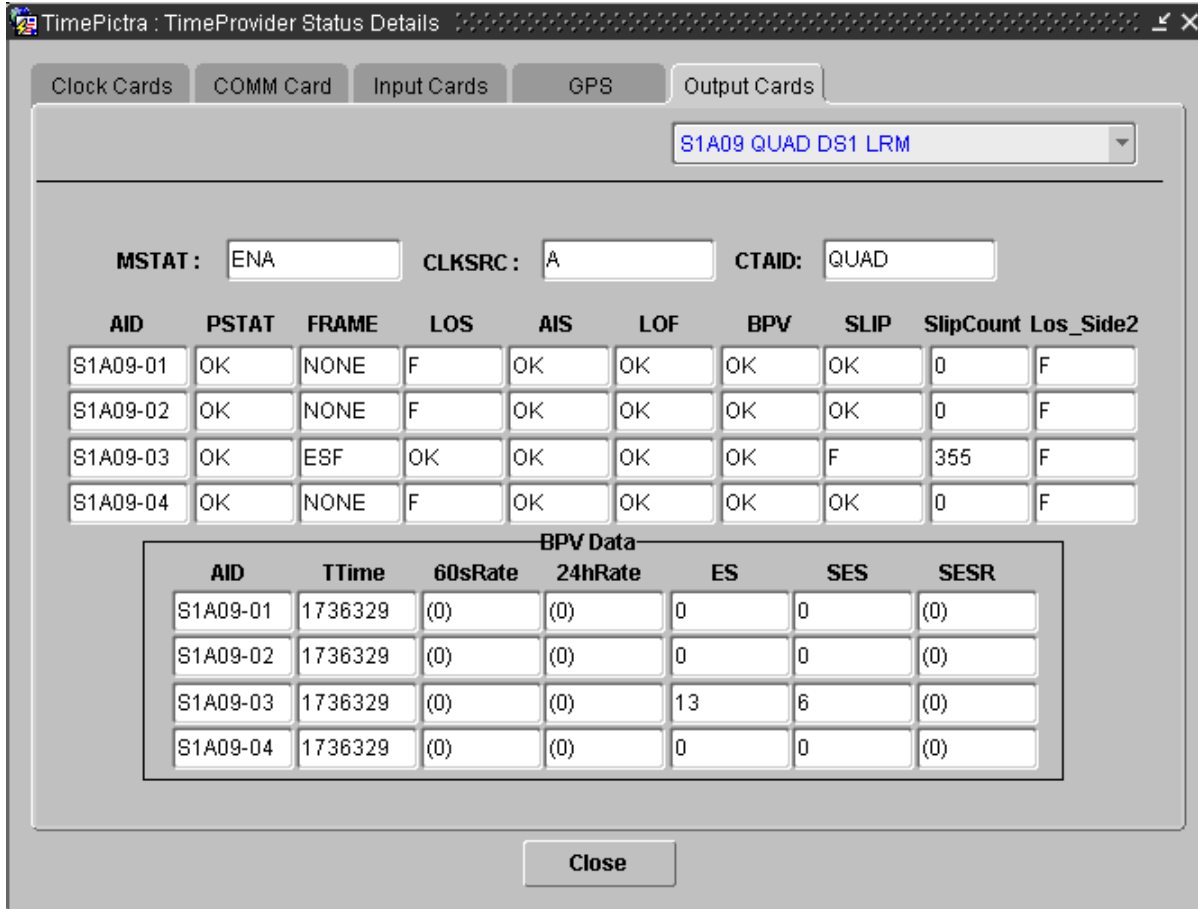
Figure I-9.   Status Details Dialog Box – Output Cards (DS1 LRU)

Table I-2. Status Details Dialog Box Description

Item	Description
①	The central area of the dialog box shows the status details for the card type which has been selected using the tabs. If more than one card of a given type is installed in the unit, the drop-down list in the upper right corner of the dialog box can be used to select an individual card of the selected type to view.
②	Clicking this tab displays status details for clock cards, and the drop-down list that appears below and to the right of the tabs is used to select an individual clock card's status to display. The following status details are displayed: • MSTAT - the current module status (OK, SEL, DIS, FLT) • TAU - the current time constant in seconds for the clock control loop. • MODE - the current clock mode (WARM, ACQ, LOCK, HOLD) • PQL - the stratum level of the clock.

Table I-2. Status Details Dialog Box Description (Continued)

Item	Description
③	Clicking this tab displays Network Time Protocol (NTP) status details for the communications card. The following status details are displayed for each NTP server: • IP – the server IP address used by the client, broadcast client, or broadcast server • Offset – the number of seconds (partial seconds) that the local time was adjusted by • Delay – the calculated delay in the communication path • Dispersion – a value indicating the accuracy of the offset and delay settings
④	Clicking this tab displays status details for input cards, and the drop-down list that appears below and to the right of the tabs is used to select an individual input card's status to display. The following status details are displayed for each input port on the selected card: • AID – the port's aid • MSTAT – the current module status (OK, DIS, FLT) • PSTATE – the current port state (OK, DIS, FLT) • PHA – the current 1 second phase value, in nanoseconds (or NA if not available) • PHB – the current 1 second phase value, in nanoseconds (or NA if not available) • PQL – the current priority quality level (read or provisioned) being reported by the port, if available **Note:** When a Japanese Sine Wave Input card is selected, the clock data frequency is displayed as FREQA and FREQB The drop-down list that appears in the center is used to select a card's port. *DATA INPUT* The number of consecutive errored seconds for each error type and for each port for LOS, AIS, OOF, BPV and CRC. *DATA FREQUENCY* Clock A – the frequency of the port versus clock A Clock B – the frequency of the port versus clock B

Table I-2. Status Details Dialog Box Description (Continued)

Item	Description
⑤	Clicking this tab displays status details for GPS input modules, and the drop-down list that appears below and to the right of the tabs is used to select an individual module's status to display. *DATA GPS* The following status details are displayed for each GPS input channel: • Channel No. – the channel number being used to track the corresponding satellite specified by the pseudo-random noise code • Satellite PN Code – the satellite's pseudo-random noise code • Signal-to-Noise-Ratio – the signal-to-noise ratio or signal strength • Status – the current tracking status [SRC (searching), COD (code locking), FRQ (frequency locking), TIM (setting time), EPH (retrieving ephemeris data), OK (satellite being used)] *DATA GPS AVAIL* The following status details are displayed for each satellite currently being tracked: • Channel No. – the channel number being used to track the corresponding satellite • Satellite PN Code – the satellite's pseudo-random noise code • Health – the current health of the satellite [H (healthy), U (unhealthy]) • Azimuth – the calculated azimuth of the satellite, in degrees • Elevation – the calculated elevation of the satellite, in degrees
⑥	Clicking this tab displays status details for output cards, and the drop-down list that appears below and to the right of the tabs is used to select an individual output card's status to display. See Item 7 for details on the Line Retiming Unit (LRU) The following status details are displayed for output cards *other* than the LRU: • MSTAT – the current module status (OK, DIS, FLT) • CLKSRC – the clock that is generating the output (CLK-A, CLK-B, CLK-C, CLK-D) • RED – indicates if the clock module is redundant [NA (non-redundant), S*x*A*y* (the redundant module identifier)] • PQL – the priority quality level being generated

Table I-2. Status Details Dialog Box Description (Continued)

Item	Description
7	Clicking this tab displays status details for output cards, and the drop-down list that appears below and to the right of the tabs is used to select an individual output card's status to display.
	See Item 6 for details on cards *other* than the Line Retiming Unit (LRU)
	The following general status details are displayed for the selected LRU and E1 LRU: • MSTAT – the current module status [ENA (enabled), DIS (disabled)] • CLKSRC – Indicates the clock that is the reference • CTAID – indicates if CTA is installed [NONE (not installed), DUAL (2-port CTA), QUAD (4-port CTA) • RED – Indicates configuration for redundant operation • PQL – Indicates the Priority Quality Level (SSM) being generated
	The following status details are displayed for each module port: • AID – the port's aid. • PSTAT – the current port status [enabled and functioning (OK), in cut-through mode (CUT), disabled (DIS)] • FRAME – the framing type (D4, ESF, NONE) • LOS – indicates Loss of Signal errors [no errors have occurred in the past second (OK), errors have occurred in the past second (F)] • AIS – indicates Alarm Indication Signal errors [no errors have occurred in the past second (OK), errors have occurred in the past second (F)] • LOF – indicates Loss of Frame errors [no errors have occurred in the past second (OK), errors have occurred in the past second (F)] • BPV – indicates Bipolar Violation errors [no errors have occurred in the past second (OK), errors have occurred in the past second (F)] • SLIP – indicates slips [no slips have occurred in the past second (OK), slips have occurred in the past second (F)] • SlipCount – the slips in a 24-hour period • Los_Side2 – the Loss Of Signal error status of Side 2 [no errors occurred (OK, errors occurred (F)]
	BPV DATA The following Bipolar Variation data is displayed for each module port: • AID – the port's aid. • TTime – the time, in seconds, since the last BPV Clear command was issued • 60sRate – the BPV error rate per second in a 60-second window • 24hRate – the BPV error rate per second in a 86400-second window • ES – the number of seconds during the test period that had a BPV associated with them • SES – the number of seconds during the test period in which the BPV rate exceeded $1E-3$ per second • SESR – the BPV Severely Errored Ratio
8	Clicking the Close button closes the dialog box.

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 I-3 explains the status indicators shown for the Stratum 2E Clock module.

Table I-3. 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 flashing[1], the clock module is downloading firmware. If amber, 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 amber, 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 amber, the Clock module is in Holdover mode of operation. If off, the Clock module is not in Holdover mode.

Note:

[1]   The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

Stratum 3E Clock Module

Table I-4 explains the status indicators shown for the Stratum 3E Clock Module.

Table I-4. 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 flashing[1], the clock module is downloading firmware. If amber, an unknown Clock module status or fault has been detected.

Table I-4. Stratum 3E Clock Module Status Indicators (Continued)

Indicator	Description
SELECTED	If green, the Clock module is selected for providing outputs. If off, the Clock module is not selected.
WARMUP	If amber, 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 amber, the Clock module is in Holdover mode of operation. If off, the Clock module is not in Holdover mode.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

Type 1 Clock Module

Table I-4 explains the status indicators shown for the Type 1 Clock Module.

Table I-5. Type 1 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 flashing[1], the clock module is downloading firmware. If amber, 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 amber, 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 amber, the Clock module is in Holdover mode of operation. If off, the Clock module is not in Holdover mode.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

Communications Module (Comm Module)

Table I-6 explains the status indicators shown for the Communications Module.

Table I-6. 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 flashing[1], the Communications module is downloading firmware. If amber, 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 amber, a Major system alarm is present. If off, no Major system alarm is present.
MINOR	If amber, 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.

Note:

[1]   The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

GPS Input Module

Table I-7 explains the status indicators shown for the GPS Input Module card.

Table I-7. 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 flashing[1], the Communications module is downloading firmware. If amber, a fault condition has been detected (the firmware timed out).

Table I-7. GPS Input Module Status Indicators (Continued)

Indicator	Description
REF	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 flashing[2], an antenna fault has been detected. If amber, the module is experiencing a tracking problem without an antenna fault.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

[2] The TRACKING indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

E1 Input Module

Table I-8 explains the status indicators shown for the E1 Input module.

Table I-8. E1 Input Module Status Indicators

Indicator	Description
POWER	If green, the module is receiving +5 vDC power. If off, no power is present.
STATUS	If green, the module is in the Normal mode of operation (no faults). If flashing[1], the Communications module is downloading firmware. If amber, a fault condition has been detected.
PORT 1, 2, 3[2] REF	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.
PORT 1, 2, 3[2] INPUT	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

[2] The Port 2 and Port 3 indicators are not shown on 1-Port E1 Input module status panels.

DS1 Input Module

Table I-9 explains the status indicators shown for the DS1 Input module.

Table I-9. DS1 Input Module Status Indicators

Indicator	Description
POWER	If green, the module is receiving +5 vDC power. If off, no power is present.
STATUS	If green, the module is in the Normal mode of operation (no faults). If flashing[1], the Communications module is downloading firmware. If amber, a fault condition has been detected.
PORT 1, 2, 3[2] REF	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.
PORT 1, 2, 3[2] INPUT	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

[2] The Port 2 and Port 3 indicators are not shown on 1-Port DS1 Input module status panels.

Composite clock Input Module

Table I-9 explains the status indicators shown for the Composite clock Input module.

Table I-10. Composite Clock Input Module Status Indicators

Indicator	Description
POWER	If green, the module is receiving +5 vDC power. If off, no power is present.
STATUS	If green, the module is in the Normal mode of operation (no faults). If flashing[1], the Communications module is downloading firmware. If amber, a fault condition has been detected.
PORT 1, 2, 3[2] REF	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.
PORT 1, 2, 3[2] INPUT	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.

Note:

¹ The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

² The Port 2 and Port 3 indicators are not shown on 1-Port DS1 Input module status panels.

Japanese Sine Wave Input Module

Table I-8 explains the status indicators shown for the Japanese Sine Wave Input module.

Table I-11. Japanese Sine Wave Input Module Status Indicators

Indicator	Description
POWER	If green, the module is receiving +5 vDC power. If off, no power is present.
STATUS	If green, the module is in the Normal mode of operation (no faults). If flashing¹, the Communications module is downloading firmware. If amber, a fault condition has been detected.
PORT 1, 2, 3² REF	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.
PORT 1, 2, 3² INPUT	On (Green) = Selected. On (Amber) = Not good and ignored. Off = ignored or good and not selected.

Note:

¹ The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

² The Port 2 and Port 3 indicators are not shown on 1-Port E1 Input module status panels.

Japanese Composite Clock Input Module

Table I-8 explains the status indicators shown for the Japanese Composite Clock Input module.

Table I-12. Japanese Composite Clock Input Module Status Indicators

Indicator	Description
POWER	If green, the module is receiving +5 vDC power. If off, no power is present.
STATUS	If green, the module is in the Normal mode of operation (no faults). If flashing[1], the Communications module is downloading firmware. If amber, a fault condition has been detected.
REF	On (Green) = Selected. Off = Disabled, or good and not selected.
INPUT	On (Green) = Enabled and signal valid. On (Amber) = Enabled and signal not valid. Off = Disabled.

Note:

  [1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

E1 Output Module

Table I-13 explains the status indicators shown for the E1 Output module.

Table I-13. 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 flashing[1], the E1 output module is downloading firmware. If amber, the module is experiencing a module failure.
SOURCE A	If green, Clock A is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.

Table I-13. E1 Output Module Status Indicators (Continued)

Indicator	Description
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:

  [1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

E1/2048 kHz Output Module

Table I-14 explains the status indicators shown for the E1/2048 kHz Output module.

Table I-14. E1/2048 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 flashing[1], the E1/2048 kHz output module is either downloading firmware, or is disabled. If amber, the module is experiencing a module failure.
SOURCE A	If green, Clock A is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:

  [1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

DS1 Output Module

Table I-15 explains the status indicators shown for the DS1 Output module.

Table I-15. 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 flashing[1], the DS1 output module is downloading firmware. If amber, the module is experiencing a module failure.
SOURCE A	If green, Clock A is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

Composite Clock Output Module

Table I-16 explains the status indicators shown for the Composite Clock Output module.

Table I-16. 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 flashing[1], the module is downloading firmware. If amber, the module is experiencing a module failure.

Table I-16. Composite Clock Output Module Status Indicators (Continued)

Indicator	Description
SOURCE A	If green, Clock A is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

Japanese Composite Clock Output Module

Table I-16 explains the status indicators shown for the Japanese Composite Clock Output module.

Table I-17. Japanese 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 flashing[1], the module is downloading firmware. If amber, the module is experiencing a module failure.
SOURCE A	If green, Clock A in slot 1 is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B in slot 12 is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.

Table I-17. Japanese Composite Clock Output Module Status Indicators (Continued)

Indicator	Description
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

Japanese Sine Wave Output Module

Table I-16 explains the status indicators shown for the Japanese Sine Wave Output module.

Table I-18. Japanese Sine Wave 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 flashing[1], the module is downloading firmware. If amber, the module is experiencing a module failure.
SOURCE A	If green, Clock A in slot 1 is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B in slot 12 is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

2048 kHz Output Module

Table I-19 explains the status indicators shown for the 2048 kHz Output module.

Table I-19. 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 flashing[1], the 2048 kHz output module is downloading firmware. If amber, the module is experiencing a module failure.
SOURCE A	If green, Clock A is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:
[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

RS-422 Output Module

Table I-20 explains the status indicators shown for the RS-422 Output module.

Table I-20. RS-422 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 flashing[1], the RS-422 output module is downloading firmware. If amber, the module is experiencing a module failure.

Table I-20. RS-422 Output Module Status Indicators (Continued)

Indicator	Description
SOURCE A	If green, Clock A is the selected source clock. If amber, Clock A is faulty or missing. If off, Clock A is good and not selected.
SOURCE B	If green, Clock B is the selected source clock. If amber, Clock B is faulty or missing. If off, Clock B is good and not selected.
SOURCE C	If green, the Bypass clock is the selected source clock. If amber, the Bypass clock is faulty or missing. If off, the Bypass clock is either ignored, or good and not selected.
SOURCE D	If green, the Expansion clock is the selected source clock. If amber, the Expansion clock is faulty or missing. If off, the Expansion clock is either ignored, or good and not selected.
OUTPUT FAULT	If amber, the module has detected one or more faulty outputs. If off, all output signals are good.

Note:

[1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

LRU Module/E1 LRU Module

Table I-21 explains the status indicators shown for both the LRU and E1 LRU Module.

Table I-21. LRU Module/E1 LRU 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 amber, the module is experiencing a module failure.
PORT 1	If green, the port is selected. If amber, the port is not good and ignored. If off, the port is either ignored, or good and not selected.
PORT 2	If green, the port is selected. If amber, the port is not good and ignored. If off, the port is either ignored, or good and not selected.
PORT 3[1]	If green, the port is selected. If amber, the port is not good and ignored. If off, the port is either ignored, or good and not selected.

Table I-21. LRU Module/E1 LRU Module Status Indicators (Continued)

Indicator	Description
PORT 4[1]	If green, the port is selected. If amber, the port is not good and ignored. If off, the port is either ignored, or good and not selected.
FAULT CTA	If green, CTA is connected. If amber, CTA is either not connected, or a CTA mismatch exists. If off, CTA is not connected and the alarm is set to ignore.
FAULT REF	If green, clock reference is selected. If amber, clock reference is not selected.

Note:
  [1] Only present on Quad LRU modules and E1 LRU modules.

Buffer Module

Table I-22 explains the status indicators shown for the Buffer Module card.

Table I-22. 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 flashing[1], the buffer module is downloading firmware. If amber, the status is either unknown, or a fault has been detected.
-48V Power A	If green input power is being received from Power A. If amber, 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 amber, the power connections are reversed. If off, input Power B has been lost.

Note:
  [1] The STATUS indicator will not flash if the Flash check-box in the Network Element Status dialog box is not selected.

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.

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 I-10 shows the layout of the action panel for Network Element settings, also referred to as the System Module settings. Table I-23 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 I-10. Action Panel – Network Element (NE) Settings

Table I-23. Network Element (NE) Settings

Setting/Button	Card	Description	Command/Keyword[1]
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
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)

Table I-23. Network Element (NE) Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
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)
Setup	NE	Sets the NE to the factory default or the User setup, or saves the current setup to the User setup.	SET-RMTR-SETUP (factory) (save) (user)

Note:

[1] 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. Figure I-11, Figure I-12, Figure I-13, and Figure I-14 show the layout of the action panel for the card settings. Table I-24, Table I-25, Table I-26, and Table I-27 describe the parameters in each action panel. The Command/Keyword column in the table provides a reference point in the SSU-2000 documentation where more detailed information can be found.
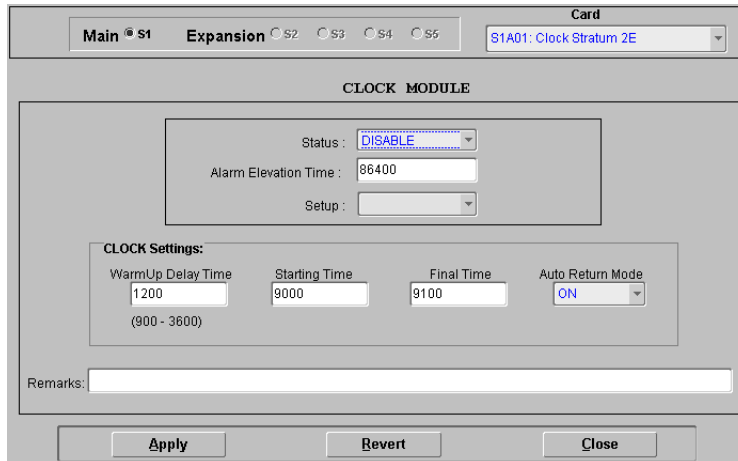
Figure I-11.   Action Panel – Card Settings (Clock Modules)

Table I-24. Clock Module Settings

Setting/Button	Description	Command/Keyword[1]
Status	Enables or disables the module.	ACT-MODULE DISC-MODULE
Alarm Elevation Time	Sets the elevation time-out for all alarms created by the module.	SET-PRMTR-ELTIME
Setup	Sets the NE to the factory default or the User setup, or saves the current setup to the User setup.	SET-RMTR-SETUP (factory) (save) (user)
Clock Settings		
Warmup Delay Time	Sets the warmup time constant of the selected clock.	SET-PRMTR-CLK (warmup)
Starting Time	Sets the starting time constant of the selected clock.	SET-PRMTR-CLK (mintau)
Final Time	Sets the final time constant of the selected clock.	SET-PRMTR-CLK (maxtau)
Auto Return Mode	The current setting of the clock Auto-Return mode.	RTRV-PRMTR-CLK (clkar)
Remarks	A text field for entering notes (remarks) concerning the module. *(TimePictra database only)*	None

Note:

[1]   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.
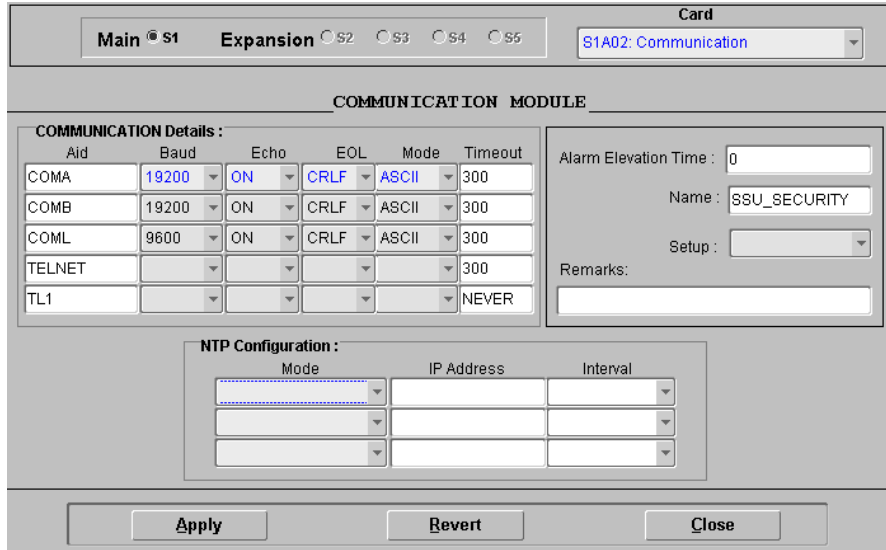
Figure I-12. Action Panel – Card Settings (Communication Module)

Table I-25. Communication Module Settings

Setting/Button	Description	Command/Keyword[1]
Alarm Elevation Time	Sets the elevation time-out for all alarms created by the module.	SET-PRMTR-ELTIME
Name	The name of the module.	RTRV-NAME SET-NAME
Setup	Sets the NE to the factory default or the User setup, or saves the current setup to the User setup.	SET-RMTR-SETUP (factory) (save) (user)
Remarks	A text field for entering notes (remarks) concerning the module. *(TimePictra database only)*	None
Communication Details		
Aid	The communications port aid to which the other parameters in the row apply.	RTRV-PRMTR-COMM (aid)
Baud	Sets the baud rate of the specified communications port.[2]	SET-PRMTR-COMM (baud)
Echo	Sets either full or half duplex on the specified communications port.[2]	SET-PRMTR-COMM (echo)

Table I-25. Communication Module Settings (Continued)

Setting/Button	Description	Command/Keyword[1]
EOL	Sets the end-of-line character(s) sent on the specified communications port.[2] Note: <cr> and <lf> or <cr lf> indicate the ASCII carriage return (CR) and line feed (LF) codes used as a line terminator and can be used separately or combined.	SET-PRMTR-COMM (eol)
Mode	Sets the mode of the specified communications port (ASCII or TL1).[2]	SET-PRMTR-COMM (mode)
Timeout	Sets the inactivity timeout period for the specified communications port.	SET-PRMTR-COMM (tout)
NTP Configuration		
Mode	Sets the NTP mode.	SET-PRMTR-NTP (mode)
IP Address	Sets the IP address for the NTP mode.	SET-PRMTR-NTP (ip)
Interval	Sets the interval.	SET-PRMTR-NTP (interval)

Note:

[1] 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.

[2] Not applicable to the Telnet and TL1 aids.

Figure I-13. Action Panel – Card Settings (GPS Module)

Table I-26. GPS Module Settings

Setting/Button	Description	Command/Keyword[1]
GPS Position		
Latitude	Sets the latitude of the receiver.	SET-GPS-POS (lat)
Longitude	Sets the longitude of the receiver.	SET-GPS-POS (lon)
Height	Sets the height of the receiver.	SET-GPS-POS (hgt)
Dilution of Precision	Sets the position dilution of precision mask.	SET-GPS-POS (pdop)
Mode	The GPS positioning mode currently being used.	RTRV-GPS-POS (mode)
Average	Sets the position averaging value.	SET-GPS-POS (avg)
Elev Position	Sets the minimum satellite elevation to use for positioning.	SET-GPS-POS (posel)
Elev Timing	Sets the minimum satellite elevation to use for timing.	SET-GPS-POS (timel)
PRMTR Settings		
Priority Setting	Sets the input priority setting.	SET-PRMTR-GPS (pri)
Priority Quality	Sets the priority quality level.	SET-PRMTR-GPS (pql)
Noise Measurement	Sets the noise measurement limit.	SET-PRMTR-GPS (sigma)
Status	Enables or disables the module.	ACT-MODULE DISC-MODULE
Alarm Elevation Time	Sets the elevation time-out for all alarms created by the module.	SET-PRMTR-ELTIME
Setup	Sets the NE to the factory default or the User setup, or saves the current setup to the User setup.	SET-RMTR-SETUP (factory) (save) (user)
Remarks	A text field for entering notes (remarks) concerning the module. *(TimePictra database only)*	None

Note:

[1] 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.

Figure I-14. Action Panel – Card Settings (Input Modules)

Table I-27. Input Module Settings

Setting/Button	Description	Command/Keyword[1]
INPUT MODULE		
Status	Enables or disables the module.	ACT-MODULE DISC-MODULE
Alarm Elevation Time	Sets the elevation time-out for all alarms created by the module.	SET-PRMTR-ELTIME
Setup	Sets the NE to the factory default or the User setup, or saves the current setup to the User setup.	SET-RMTR-SETUP (factory) (save) (user)
Remarks	A text field for entering notes (remarks) concerning the module. *(TimePictra database only)*	None

Note:

[1] 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 I-15 shows the layout of the action panel for input ports. Table I-28 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 I-15. Action Panel – DS1 and E1 Input Port Settings

Figure I-16. Action Panel – Composite Clock Input Port Settings

Figure I-17. Action Panel – Japanese Sinewave Input Port Settings
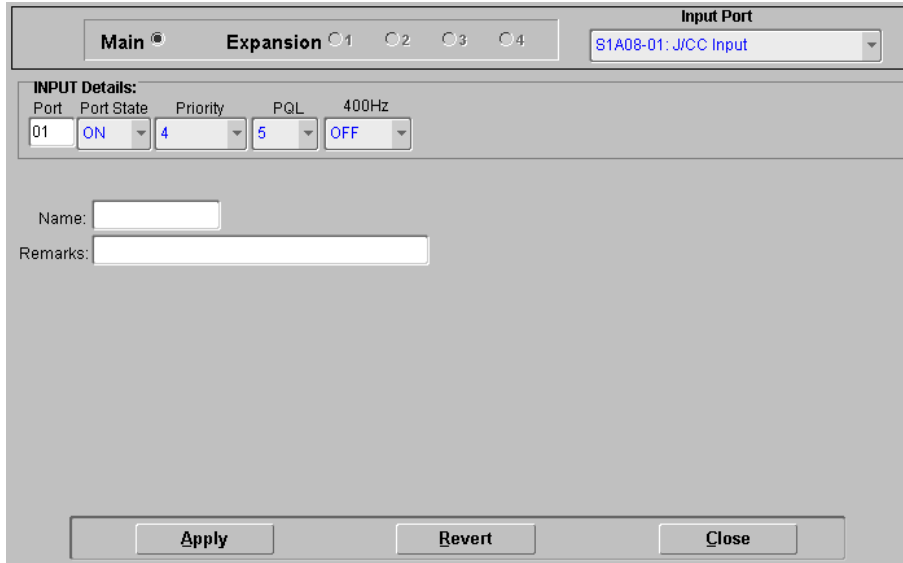
Figure I-18. Action Panel – Japanese Composite Clock Input Port Settings

Table I-28. Input Port Settings

Setting/Button	Card	Description	Command/Keyword[1]
Shelf Selector			
Main/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 CC Input J/SW Input J/CC Input	The input port to which the remainder of the settings in the row apply.	RTRV-PRMTR-INPUT (aid) RTRV-PRMTR-CCINP (aid)

Table I-28. Input Port Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
Port State	E1 Input, DS1 Input	Sets whether the port is enabled or disabled.	SET-PRMTR-INPUT (pstate)
	CC Input		SET-PRMTR-CCINP (pstate)
	J/SW Input		SET-PRMTR-INPSINE (pstate)
	J/CC Input		SET-PRMTR-INPJCC (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)
	CC Input		SET-PRMTR-CCINP (pri)
	J/SW Input		SET-PRMTR-INPSINE (pri)
	J/CC Input		SET-PRMTR-INPJCC (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)
	CC Input		SET-PRMTR-CCINP (pql)
	J/SW Input		SET-PRMTR-INPSINE (pql)
	J/CC Input		SET-PRMTR-INPJCC (pql)
Frequency	J/SW Input	Sets the input frequency to 1.544 or 6.312 MHz.	SET-PRMTR-INPSINE (frequency)
400Hz	J/CC Input	Sets the 400 Hz component to ON or OFF (ON enables squelching BPV at a 400 Hz rate)	SET-PRMTR-INPJCC (400hz)

Table I-28. Input Port Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
ZS	E1 Input, DS1 Input	Sets whether zero suppression is on or off.	SET-PRMTR-INPUT (zs)
	CC Input		SET-PRMTR-CCINP (zs)
CSFLT	E1 Input, DS1 Input CC Input	Sets the Cesium fault logic level.	SET-PRMTR-INPUT (csflt)
	J/SW Input		SET-PRMTR-INPSINE (csflt)
PRMTR			
Signal Fault	E1 Input, DS1 Input CC 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 CC 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)
Clr Thr.	E1 Input, DS1 Input CC 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)
Mask Settings			
Mask (radio buttons)	E1 Input, DS1 Input CC Input J/SW Input	Sets a pre-defined MTIE mask, or selects the user defined MTIE mask.	SET-MTIE-MASK
PRMTR MTIE t10	E1 Input, DS1 Input CC Input J/SW 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

Table I-28. Input Port Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
PRMTR MTIE t100	E1 Input, DS1 Input CC Input J/SW 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 CC Input J/SW 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 CC Input J/SW 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 CC Input J/SW 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
Frequency Threshold Settings			
Frequency	E1 Input, DS1 Input J/SW Input	The frequency alarm. The remainder of the threshold settings apply to this alarm.	RTRV-PRMTR-FREQ

Table I-28. Input Port Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
Err Thr.	E1 Input, DS1 Input CC Input J/SW 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 CC Input J/SW Input	Sets the clear threshold for input versus Clock A (A), or input versus Clock B (B).	SET-PRMTR-FREQ (fac, fbc)
Err. Tau	E1 Input, DS1 Input CC Input J/SW Input	Returns the MTIE threshold settings for the designated input port.	RTRV-PRMTR-FREQ (fatau, fbtau))
Name	All	Sets the name designation for the input port.	SET-NAME (aid)
Remarks	All	A text field for entering notes (remarks) concerning the input port. *(TimePictra database only)*	None

Note:

[1] 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 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 I-19 through Figure I-25 shows the layout of the various action panels for output card/port settings. Table I-29 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 I-19. Action Panel – Output Card/Port Settings (2048 kHz Output Module)

Figure I-20. Action Panel – Output Card/Port Settings (Composite Clock Output Card)

Figure I-21. Action Panel – Output Card/Port Settings (DS1 and E1 Output Cards)

Figure I-22. Action Panel – Output Card/Port Settings (E1/2048 kHz Output Card)

Figure I-23. Action Panel – Output Card/Port Settings (LRU Card)

Figure I-24. Action Panel – Output Card/Port Settings (E1 LRU Card)

Figure I-25. Action Panel – Output Card/Port Settings (RS-422 Output Card)

Figure I-26. Action Panel – Output Card/Port Settings (J/SW Output Card)

Figure I-27. Action Panel – Output Card/Port Settings (J/CC Output Card)

Table I-29. Output Card/Port Settings

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
Shelf Selector			
Main/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 I-29. Output Card/Port Settings (Continued)

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
Card Attributes			
Mode	2048 kHz Composite Clock E1/2048 kHz E1/DS1 RS-422	Sets or displays the output signal mode.	RTRV-PRMTR-CLKOUT (mode) RTRV-PRMTR-CCOUT (mode) RTRV-PRMTR-OUTE12048 (mode) SET-PRMTR-OUTPUT (mode) RTRV-PRMTR-OUT422 (mode)
Level	2048 kHz Composite Clock E1/DS1	Sets the condition when the outputs are turned on.	SET-PRMTR-CLKOUT (level) SET-PRMTR-CCOUT (level) SET-PRMTR-OUTPUT (level)
Bypass	2048 kHz Composite Clock E1/2048 kHz E1/DS1 RS-422 Output Sine J/CC Output	Determines whether or not Clock C selection is allowed.	SET-PRMTR-CLKOUT (bypass) SET-PRMTR-CCOUT (bypass) SET-PRMTR-OUTE12048 (bypass) SET-PRMTR-OUTPUT (bypass) SET-PRMTR-OUT422 (bypass) SET-PRMTR-OUTSINE (bypass) SET-PRMTR-OUTJCC (bypass)
Frequency	Output Sine	Set the port frequency to 1.544 or 6.312 MHz	SET-PRMTR-OUTSINE (frequency)
400Hz	J/CC Output	ON sets the output to align with the 400 Hz BPV component	SET-PRMTR-OUTJCC (400hz)
FLTMODE	2048 kHz RS-422	Determines whether or not the output level will be monitored for fault thresholds.	SET-PRMTR-CLKOUT (fltmode) SET-PRMTR-OUT422 (fltmode)
ZS	E1/2048 kHz E1/DS1	Sets whether zero suppression is on or off.	SET-PRMTR-OUTE12048 (zs) SET-PRMTR-OUTPUT (zs)
CRC	E1/DS1 E1/2048	Sets whether error checking is on or off.	SET-PRMTR-OUTPUT (crc) SET-PRMTR-OUTE12048 (crc)
SSM	E1/2048	Enables or disables the reading of input SSMs.	SET-PRMTR-OUTE12048 (ssm)
Bit	E1/DS1 E1/2048	Sets the SSM bit (4-8) for E1 sync status messages.	SET-PRMTR-OUTPUT (bit) SET-PRMTR-OUTE12048 (bit)
Status	Output (all)	Enables or disables the module.	ACT-MODULE DISC-MODULE
Alarm Elevation Time	Output (all)	Sets the elevation time-out for all alarms created by the module.	SET-PRMTR-ELTIME

Table I-29. Output Card/Port Settings (Continued)

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
Setup	NE	Sets the NE to the factory default or the User setup, or saves the current setup to the User setup.	SET-RMTR-SETUP (factory) (save) (user)
Remarks	Output (all)	A text field for entering notes (remarks) concerning the module. *(TimePictra database only)*	None
Port Attributes			
Enable	LRU E1 LRU	Sets whether the module is enabled or disabled.	SET-PRMTR-LRM (enable) SET-PRMTR-LRME1 (enable)
LBO	LRU	Sets the line build- out for DS1 outputs.	SET-PRMTR-LRM (lbo)
Slip	LRU E1 LRU	Sets or clears the slip error threshold.	SET-PRMTR-LRM (slip) SET-PRMTR-LRME1 (slip)
FLT	LRU E1 LRU	Sets the output generation fault strategy.	SET-PRMTR-LRM (flt) SET-PRMTR-LRME1 (flt)
BPV	LRU E1 LRU	Clears the bipolar violation error count and accumulated error ratio.	SET-PRMTR-LRM (bpv) SET-PRMTR-LRME1 (bpv)
CID	LRU E1 LRU	Sets the LRU port circuit identifier (CID)	SET-PRMTR-LRMCID (cid)
Compensation	Composite clock	Sets the phase compensation delay.	SET-PRMTR-CCOUT (pcomp)
Duty Cycle	Composite clock	Sets the duty cycle to use.	SET-PRMTR-CCOUT (duty)
Frequency	RS-422	Sets the output frequency	SET-PRMTR-OUT422 (frequency)
Port	Output (all)	The output port to which the remainder of the settings in the row apply.	RTRV-PRMTR-CLKOUT RTRV-PRMTR-CCOUT RTRV-PRMTR-LRM RTRV-PRMTR-OUTE12048 RTRV-PRMTR-OUTPUT RTRV-PRMTR-OUT422
Name	All	Sets the name designation for the output port.	SET-NAME (aid) (name)

Table I-29. Output Card/Port Settings (Continued)

Setting/Button	Card	Description	COMMAND/KEYWORD[1]
Signal	E1/2048 kHz	Sets the output signal type.	SET-PRMTR-OUTE12048 (signal)
Port State	2048 kHz Composite Clock E1/2048 kHz E1/DS1 RS-422 Output Sine J/CC Output	Sets whether the output port is enabled or disabled.	SET-PRMTR-CLKOUT (pstate) SET-PRMTR-CCOUT (pstate) SET-PRMTR-OUTE12048 (pstate) SET-PRMTR-OUTPUT (pstate) SET-PRMTR-OUT422 (pstate) SET-PRMTR-OUTSINE (pstate) SET-PRMTR-OUTJCC (pstate)
Phase Comp	J/CC Output	Sets the phase compensation delay	SET-PRMTR-OUTJCC (pcomp)
Squelch	2048 kHz, E1/2048 kHz Output Sine	Sets the squelch threshold. The output is squelched if the system PQL exceeds this value.	SET-PRMTR-CLKOUT (squelch) SET-PRMTR-OUTE12048 (squelch) SET-PRMTR-OUTSINE (squelch)
Line Length	E1/DS1	Sets the output port line length.	SET-PRMTR-OUTPUT (len)
Remarks	2048 kHz Composite Clock E1/2048 kHz E1/DS1 RS-422	A text field for entering notes (remarks) concerning the port. *(TimePictra database only)*	None

Note:

[1] 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 I-28 shows the layout of the action panel for alarm settings. Table I-30 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.
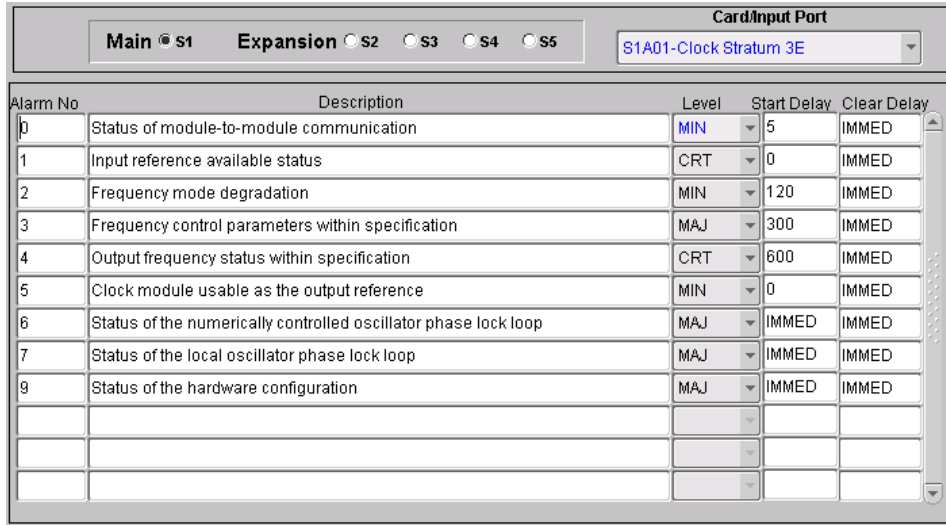
Figure I-28. Action Panel – Alarm Settings

Table I-30. Alarm Settings

Setting/Button	Card	Description	Command/Keyword[1]
Shelf Selector			
Main/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
Alarm Settings			
Alarm No	Clock, Comm, Input (all), Output (all)	An internal number used for alarm identification. *Note:* Refer to Table I-32 in SSU-2000 Alarm Messages, on page 523 for alarm descriptions.	RTRV-PRMTR-ALARM (almnum)

Table I-30. Alarm Settings (Continued)

Setting/Button	Card	Description	Command/Keyword[1]
Description	Clock, Comm, Input (all), Output (all)	The description of the alarm, as retrieved from the NE. *Note:* Refer to Table I-32 in SSU-2000 Alarm Messages, on page 523 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)

Note:

[1] 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/1 command 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 Chapter 8, 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 I-29 and Table I-31 briefly explain the Firmware Download dialog box.
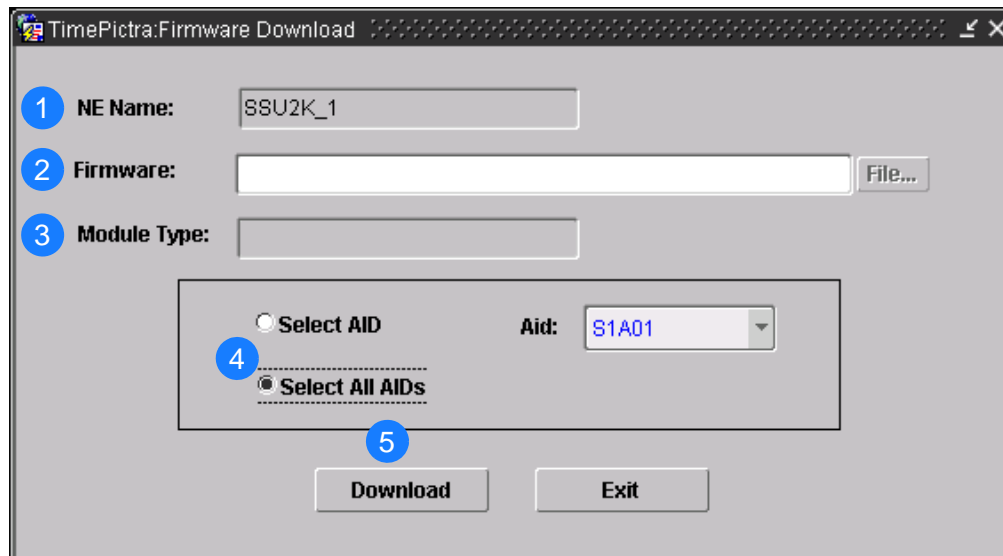
Figure I-29. Firmware Download Dialog Box

Table I-31. 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.
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 the following procedure to download firmware upgrade files to target cards on the SSU-2000 NE.

Note: Users of the Security class can perform this procedure.

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.

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:
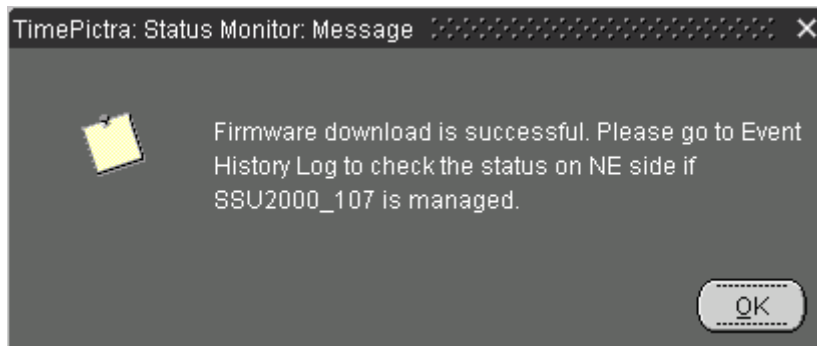
Figure I-30. Status Monitor Message

Notes:
1. 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.

2. 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.

SSU-2000 Alarm Messages

Table I-32 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 I-32. Clock Module Alarm Messages

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Status of module-to- module communication	0	Minor	■ Communication OK ■ Communication Bad	Unable to communicate with other modules. Re-seat modules.
Input reference available status	1	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 recovers, the alarm clears.
Frequency mode degradation	2	Minor	■ Ok ■ Holdover	Invalid reference input causes Holdover. Verify input setup.
Frequency control parameters within specification	3	Major	■ Ok ■ Out of Range	The reference input frequency is over the clock pull-in range.
Output frequency status within specification	4	Minor	■ Ok ■ Degraded	Output exceeded pull-in range of oscillator. Select new input reference.

Table I-32. Clock Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Clock module usable as the output reference	5	Minor	■ Ok ■ Invalid	Clock mode has warmed up.
Status of the numerically controlled oscillator phase locked loop	6	Major	■ Ok ■ Not Locked	Alarm clears within one minute after module is installed. If alarm persists, re-seat modules.
Status of the local oscillator phase lock loop	7	Major	■ Ok ■ Not Locked	Alarm will clear within 1 minute after module is installed. If alarm persists, re-seat module.
Status of the rubidium's internal phase lock loop (ST2E clock only)	8	Major	■ Ok ■ Not Locked	Only available with Stratum 2E Rubidium module. If alarm persists, re-seat module.
Status of the hardware configuration	9	Major	■ Ok ■ Failed	Call Symmetricom Global Services. Return to factory.

Table I-33. Communications Module Alarm Messages

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Module-to-module communication	0	Minor	■ Ok ■ Bad	Unable to communicate with other modules. Re-seat modules.
Indication of output controller mastership	1	Minor	■ Ok ■ Bad	Identifies master output controller. No action necessary.
Status of Power A	2	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, issue the command AL 10-1 IG at the prompt.

Table I-33. Communications Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Status of Power B	3	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.
Status of module's serial peripheral interface hardware (SPI watchdog timeout)	4	Minor	■ Ok ■ Timeout	Unable to communicate with other modules. Re-seat module.
Communications with Shelf 2	5	Critical	■ Ok ■ Lost	Unable to communicate with Expansion Shelf 2. Check cables.
Communications with Shelf 3	6	Critical	■ Ok ■ Lost	Unable to communicate with Expansion Shelf 3. Check cables.
Communications with Shelf 4	7	Critical	■ Ok ■ Lost	Unable to communicate with Expansion Shelf 4. Check cables.
Communications with Shelf 5	8	Critical	■ Ok ■ Lost	Unable to communicate with Expansion Shelf 5. Check cables.
Module has been removed from shelf	9	Minor	■ Ok ■ Fault	A module has been removed from the system or is not responding to Comms module queries. Replace the removed module with the same type, or issue the command CONFIG xAy REMOVE to remove the module information from the system database.

Table I-34. Input Module Alarm Messages

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
DS1/E1 Input Module Alarms				
Loss of signal fault status	0	Major	■ Ok ■ Active	Verify signal is connected. To extinguish, disable port.
Alarm indication signal fault status	1	Major	■ Ok ■ Active	Verify input signal is good. Port can be disabled.
Out of frame signal fault status	2	Minor	■ Ok ■ Active	Change frame type: ■ DS1-ESF or D4 ■ E1-CAS or CCS
Bipolar violation signal fault status	3	Minor	■ Ok ■ Active	Verify port ZS is on. Verify signal is good.
CRC error fault status	4	Minor	■ Ok ■ Active	Verify port CRC is off. Verify signal is good.
MTIE fault status limit 1	5	Major	■ Ok ■ Exceeded	MTIE limit 1 has been exceeded.
MTIE fault status limit 2	6	Minor	■ Ok ■ Exceeded	MTIE limit 2 has been exceeded.
Received PQL below provisioned PQL status	7	Minor	■ Ok ■ Below Prov	Received SSM (PQL) is below provisioned PQL.
No SSM status	8	Major	■ Ok ■ Lost	Set port SSM to Off to clear.
Module boot problem	9	Minor	■ Ok ■ Failed	Re-seat module.
Clock PLL not locked	10	Major	■ Ok ■ Not Locked	Re-seat module.
Input PLL not locked	11	Major	■ Ok ■ Not Locked	Verify input frequency setting. Re-seat module.
Phase measurement hardware fault	12	Major	■ Ok ■ Bad	Re-seat module.
Frequency measurement range exceeded	13	Minor	■ Ok ■ Exceeded	Input frequency greater than threshold. Monitor frequency; if persistent, check source.
Hardware configuration fault	14	Major	■ Ok ■ Failed	Call Symmetricom Global Services. Return to factory.

Table I-34. Input Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
GPS Input Module Alarms				
Hardware configuration fault	0	Major	■ Ok ■ Failed	Call Symmetricom Global Services. Return to factory.
GPS Engine tracking status	1	Major	■ Ok ■ Not Tracking	No visible satellites seen at startup.
Antenna connection status	2	Major	■ Ok ■ Not Connected	Verify that: ■ The antenna is connected ■ The cable and connectors are not damaged ■ The antenna is correctly placed
Antenna condition fault	3	Major	■ 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
GPS Engine hardware fault	4	Major	■ Ok ■ Bad	Reseat module. If problem persists, call Symmetricom Global Services.
Engine system fault	5	Minor	■ Ok ■ Bad	If alarm doesn't clear after 30 minutes, call Symmetricom Global Services.
Position unknown fault	6	Minor	■ Ok ■ Unknown	If alarm doesn't clear after 1 hour, call Symmetricom Global Services.
Clock PLL status fault	7	Major	■ Ok ■ Not Locked	Ensure that the GPS priority level is set to 1. Reseat module. If problem persists, call Symmetricom Global Services.
Manufacturing item number fault	8	Major	■ Ok ■ Unknown	Call Symmetricom Global Services. Return to factory.
GPS Qualifier fault	9	Report	■ Ok ■ Failed	Reseat module. If problem persists, call Symmetricom Global Services.
Phase hardware fault	10	Major	■ Ok ■ Bad	Reseat module. If problem persists, call Symmetricom Global Services.

Table I-34. Input Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Composite Clock Input Module				
Loss of Signal (LOS)	00	Major	■ Ok Active	No CC signal
Bipolar Violation (BPV) fault	03	Major	■ Ok Active	Invalid BPV density
Hardware configuration fault	05	Major	■ Ok Failed	Call Symmetricom Global Services. Return to factory
Clock PLL fault	06	Major	■ Ok Not Locked	One of the clock PLLs is not locked
Phase hardware fault	07	Major	■ Ok Bad	The phase measurements are invalid or missing
Phase 3 sigma fault	08	Minor	■ Ok Bad	The input signal is unstable
BPV Alignment	09	Major	■ Ok Active	The BPV alignment does not match the reference
Japanese Sine Wave Input Module				
LOS, Fault	0	Major	■ Ok ■ Fault	No input signal. Verify signal is connected. To extinguish alarm, disable port.
MTIE/L1, Fault	5	Minor	■ Ok ■ Fault	MTIE limit 1 exceeded.
MTIE/L2, Fault	6	Major	■ Ok ■ Fault	MTIE limit 2 exceeded.
CS Fault, Fault	7	Minor	■ Ok ■ Fault	External Signal (Cs) Fault.
Ref Qualifier, Fault	9	Minor	■ Ok ■ Fault	Reference Qualifier Fault.
Clk PLL, Fault	10	Major	■ Ok ■ Fault	One of the clock PLLs is not locked, Check clock. Re-seat module.
Inp PLL, Fault	11	Major	■ Ok ■ Fault	Verify input frequency setting. Re-seat module.
Phase Hdw, Fault	12	Major	■ Ok ■ Fault	Phase measurements invalid or missing. Hardware failure. Re-seat or replace module.

Table I-34. Input Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
FREQ, Fault	13	Minor	■ Ok ■ Fault	Input frequency greater than threshold. Monitor frequency; if persistent, check source.
Hdw Config, Fault	14	Major	■ Ok ■ Fault	Hardware Configuration Fault. Module inserted in a wrong slot.
Japanese Composite Clock Input Module				
LOS, Fault	0	Major	■ Ok ■ Fault	No input signal. Verify signal is connected. To extinguish alarm, disable port.
BPV, Fault	3	Major	■ Ok ■ Fault	Invalid BPV density.
Hdw Config, Fault	5	Major	■ Ok ■ Fault	Hardware Configuration Fault. Module inserted in a wrong slot.
Clk PLL, Fault	6	Major	■ Ok ■ Fault	One of the clock PLLs is not locked, Check clock. Re-seat module.
Phase Hdw, Fault	7	Major	■ Ok ■ Fault	The phase measurements are invalid or missing. Re-seat module.
Phase 3Sigma, Fault	8	Minor	■ Ok ■ Fault	The input signal is unstable.
4kHz Alignment, Fault	9	Report	■ Ok ■ Fault	The unselected Japanese Composite Clock input phase polarity is different from the selected JCC input reference.
400Hz Alignment, Fault	10	Report	■ Ok ■ Fault	The unselected Japanese Composite Clock input phase polarity is different from the selected JCC input reference.

Table I-35. LRM Alarm Messages

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Range	Description/ Corrective Action
DS1 Line Retiming Module					
Side 1 Loss of signal fault status	0	Minor	■ Ok ■ Fault	Minor	Verify signal is connected. To extinguish alarm, disable port.
Side 1 Alarm indication signal fault status	1	Report	■ Ok ■ Fault	Ignore Report Minor	Verify input signal is good. Port can be disabled.
Side 1 Loss of frame signal fault status	2	Report	■ Ok ■ Fault	Ignore Report Minor	Loss of frame
Side 1 Bipolar violation signal fault status	3	Report	■ Ok ■ Fault	Ignore Report Minor	Verify port ZS is on. Verify signal is good
Side 1 Slip signal fault status	4	Report	■ Ok ■ Fault	Ignore Report Minor	Accumulated slip value exceeded threshold setting
Side 2 Loss of signal fault status	5	Report	■ Ok ■ Fault	Ignore Report	Verify signal on side 2 is connected. Can be cleared by disabling port.
Reference PLL fault	10	Minor	■ Ok ■ Fault	Minor	Verify clock reference source is good. Reference PLL is unlocked
CTA Fuse	11	Minor	■ Ok ■ Fault	Ignore Report Minor	Verify CTA fuse is good
CTA	12	Minor	■ OK ■ Fault	Ignore Report Minor	CTA present/not present Mismatch Dual/Quad

Table I-36. Output Module Alarm Messages

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
DS1/E1 Output Module				
Redundant module status	0	Major	■ Ok ■ Failed	Output alignment problem. Disable module, then re-enable.
Mismatched DS1/E1 modules in redundant configuration	1	Major	■ Ok ■ Invalid	A redundant pair has one DS1 module and one E1 module. Replace module.
Loss of clock source A	2	Major	■ Ok ■ Lost	Clock module in slot A1 is in warm-up mode or has other problems.
Loss of clock source B	3	Major	■ Ok ■ Lost	Clock module in slot A12 is in warm-up mode or has other problems.
Loss of clock source C	4	Major	■ Ok ■ Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
Clock below minimum clock level	5	Major	■ Ok ■ Below	Clock A or B is below output module setting.
Clock not selected for output	6	Major	■ Selected ■ Not Selected	No clocks, no output.
Output port fault (displayed as hex value)	7	Major	■ Ok ■ Active	Indicates which output port is in fault (typically shorted). Repair short and re-enable port.
VCXO status	8	Major	■ Ok ■ Lost	VCXO problems, re-seat or replace module.
Output PLL status	9	Major	■ Ok ■ Lost	No clocks or VCXO. Re-seat and check clocks.
Configuration status	10	Major	■ Ok ■ Failed	Redundant configuration mismatch. Re-seat or replace module.
Hardware configuration fault	11	Major	■ Ok ■ Failed	Call Symmetricom Global Services. Return to factory.
Loss of clock source D	12	Major	■ Ok ■ Lost	Only in SDU. Loss of backup clock. Check cable.

Table I-36. Output Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Composite Clock Output Module				
Alarm deprecated	0	Major	■ Ok ■ Failed	Output alignment problem. Disable module, then re-enable.
Mismatched DS1/E1 modules in redundant configuration	1	Major	■ Ok ■ Invalid	A redundant pair has one DS1 module and one E1 module. Replace module.
Loss of clock source A	2	Major	■ Ok ■ Lost	Clock module in slot A1 is in warm-up mode or has other problems.
Loss of clock source B	3	Major	■ Ok ■ Lost	Clock module in slot A12 is in warm-up mode or has other problems.
Loss of clock source C	4	Major	■ Ok ■ Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
Loss of clock source D	5	Major	■ Ok ■ Lost	Only in SDU. Loss of backup clock. Check cable.
Clock below minimum clock level	6	Major	■ Ok ■ Below	Clock A or B is below output module setting.
Clock not selected for output	7	Major	■ Selected ■ Not Selected	No clocks, no output.
VCXO status	8	Major	■ Ok ■ Lost	VCXO problems, re-seat or replace module.
Output PLL status	9	Major	■ Ok ■ Lost	No clocks or VCXO. Re-seat and check clocks.
Configuration status	10	Major	■ Ok ■ Failed	Redundant configuration mismatch. Re-seat or replace module.
Internal port fault, Active 4000	11	Major	■ Ok ■ Active	Driver chip indicated a port fault on port 2 (4000 Hex).
External port fault, Active A000	12	Major	■ Ok ■ Active	Indication of external port fault on ports 2 and 4 (A000 Hex).
Hardware configuration fault	13	Major	■ Ok ■ Failed	Call Symmetricom Global Services. Return to factory.

Table I-36. Output Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
2048 kHz Output Module				
Alarm deprecated	0	–	–	Alarm not enabled
Mismatched DS1/E1 modules in redundant configuration	1	Major	■ Ok ■ Invalid	A redundant pair has one DS1 module and one E1 module. Replace module.
Loss of clock source A	2	Major	■ Ok ■ Lost	Clock module in slot A1 is in warm-up mode or has other problems.
Loss of clock source B	3	Major	■ Ok ■ Lost	Clock module in slot A12 is in warm-up mode or has other problems.
Loss of clock source C	4	Major	■ Ok ■ Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
Loss of clock source D	5	Major	■ Ok ■ Lost	Only in SDU. Loss of backup clock. Check cable.
Clock below minimum clock level	6	Major	■ Ok ■ Below	Clock A or B is below output module setting.
Clock not selected for output	7	Major	■ Selected ■ Not Selected	No clocks, no output.
VCXO status	8	Major	■ Ok ■ Lost	VCXO problems, re-seat or replace module.
Output PLL status	9	Major	■ Ok ■ Lost	No clocks or VCXO. Re-seat and check clocks.
Configuration status	10	Major	■ Ok ■ Failed	Redundant configuration mismatch. Re-seat or replace module.
Internal port fault, Active 4000	11	Major	■ Ok ■ Active	Driver chip indicated a port fault on port 2 (4000 Hex).
Hardware configuration fault	13	Major	■ Ok ■ Failed	Call Symmetricom Global Services. Return to factory.
Output squelched	14	Major	■ Ok ■ Fault	Input signal PQL is below user-defined threshold.

Table I-36. Output Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
E1/2048 kHz Output Module				
Hardware configuration error	0	Major	■ Ok ■ Failed	Module is installed in an incorrect slot.
Mismatched modules in redundant configuration	1	Major	■ Ok ■ Invalid	A redundant pair has one DS1 module and one E1 module. Replace module.
Loss of clock source A	2	Major	■ Ok ■ Lost	Clock module in slot A1 is in warm-up mode or has other problems.
Loss of clock source B	3	Major	■ Ok ■ Lost	Clock module in slot A12 is in warm-up mode or has other problems.
Loss of clock source C	4	Major	■ Ok ■ Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
Loss of clock source D	5	Major	■ Ok ■ Lost	Only in SDU. Loss of backup clock. Check cable.
Clock not selected for output	6	Major	■ Ok ■ Below	No clocks selected, no output.
VCXO status	7	Major	■ Selected ■ Not Selected	VCXO problems, re-seat or replace module.
Output PLL status	8	Major	■ Ok ■ Lost	No clocks or VCXO. Re-seat and check clocks.
Sync	9	Major	■ Ok ■ Lost	Failed to sync with master module in redundant pair.
Squelch fault	10	Major	■ Ok ■ Failed	PQL below provisioned level.
Internal port fault	11	Major	■ Ok ■ Active	Driver chip indicated a port fault on indicated port.

Table I-36. Output Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
RS-422 Output Module				
Hardware configuration status	0	Major	■ Ok ■ Failed	Module is installed in an incorrect slot.
Configuration mismatch	1	Major	■ Ok ■ Invalid	Incorrect software loaded into module.
Loss of clock source A	2	Major	■ Ok ■ Lost	Clock module in slot A1 is in warm-up mode or has other problems.
Loss of clock source B	3	Major	■ Ok ■ Lost	Clock module in slot A12 is in warm-up mode or has other problems.
Loss of clock source C	4	Major	■ Ok ■ Lost	Reference signal is in LOS and both clocks have been removed or are in warm-up.
Loss of clock source D	5	Major	■ Ok ■ Lost	Only in SDU. Loss of backup clock. Check cable.
No clock selected	6	Major	■ Ok ■ Below	No clocks or no clock output
VCXO status	7	Major	■ Selected ■ Not selected	VCXO problems, re-seat or replace module.
Output PLL status	8	Major	■ Ok ■ Lost	No clocks or VCXO. Re-seat and check clocks.
Output fault	9	Major	■ Ok ■ Failed	Call Symmetricom Global Services. Return to factory
Japanese Sine Wave Output Module				
Hdw Config, Fault	0	Major	■ Ok ■ Fault	Hardware Configuration Fault. Module inserted in a wrong slot.
Configuration, Fault	1	Major	■ Ok ■ Fault	Software configuration does not match. Remove module and clear config data with command `config xAy Remove`.
Clk-A, Fault	2	Major	■ Ok ■ Fault	Clock module in slot A1 is in warm-up mode or has other problems.

Table I-36. Output Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Clk-B, Fault	3	Major	■ Ok ■ Fault	Clock module in slot A12 is in warm-up mode or has other problems.
Clk-C, Fault	4	Major	■ Ok ■ Fault	Bypass Clock is enabled but not present. Reference signal is in LOS and both clocks either removed or in warm-up.
Clk-D, Fault	5	Major	■ Ok ■ Fault	Clock D is enabled but not present. Only in SDU. Check cable.
Clk Selected, Fault	6	Major	■ Ok ■ Fault	No output. No clocks selected.
VCXO, Fault	7	Major	■ Ok ■ Fault	VCXO problems, re-seat or replace module.
PLL, Fault	8	Major	■ Ok ■ Fault	One of the clock PLLs is not locked, Check clock. Re-seat module.
Redundant, Fault	9	Major	■ Ok ■ Fault	The Sine Output module does not support redundant configuration. Remove redundant module.
Squelch, Fault, 40000	10	Major	■ Ok ■ Fault	PQL is below provisioned value.
PortFlt, Fault, 40000	11	Major	■ Ok ■ Fault	Indicates which output port is in fault (typically shorted). Repair short and re-enable port.
Japanese Composite Clock Output Module				
Hdw Config, Fault	0	Major	■ Ok ■ Fault	Module is installed in an incorrect slot.
Configuration, Fault	1	Major	■ Ok ■ Fault	Software configuration does not match. Remove module and clear config data with command `config xAy Remove`.

Table I-36. Output Module Alarm Messages (Continued)

Alarm Description	Alarm Number	Default Alarm Level	Status Messages	Description/ Corrective Action
Clk-A, Fault	2	Major	■ Ok ■ Fault	Clock module in slot A1 is in warm-up mode or has other problems.
Clk-B, Fault	3	Major	■ Ok ■ Fault	Clock module in slot A12 is in warm-up mode or has other problems.
Clk-C, Fault	4	Major	■ Ok ■ Fault	Bypass Clock is enabled but not present. Reference signal is in LOS and both clocks either removed or in warm-up.
Clk-D, Fault	5	Major	■ Ok ■ Fault	Clock D is enabled but not present. Only in SDU. Check cable.
Clk Selected, Fault	6	Major	■ Ok ■ Fault	No output. No clocks selected.
VCXO, Fault	7	Major	■ Ok ■ Fault	VCXO problems, re-seat or replace module.
PLL, Fault	8	Major	■ Ok ■ Fault	One of the clock PLLs is not locked, Check clock. Re-seat module.
Redundant, Fault	9	Major	■ Ok ■ Fault	Japanese Composite Clock module does not support redundant configuration. Remove redundant module.
400Hz, Fault	10	Major	■ Ok ■ Fault	400 Hz Sync has failed.
4KHz, Fault, 40000	11	Major	■ Ok ■ Fault	4 kHz Sync has failed.
PortFlt, Fault, 40000	12	Major	■ Ok ■ Fault	Indicates which output port is in fault (typically shorted). Repair short and re-enable port.

Appendix J NE Information - TimeProvider 1000 and TimeProvider 1100

This chapter provides information and procedures that are specific to the TimeProvider 1000 and TimeProvider 1100 Network Elements.

In This Appendix

- Network Element Management
- Network Element Status
- Network Element Settings
- Firmware Downloads

Network Element Management

In the TimeProvider network element, an NE user's password is case-sensitive if it is enclosed in double-quotes when the user is created or the password is changed. If the password is not enclosed in double-quotes when the user is created or the password is changed, the password is not case-sensitive.

When TimeProvider NEs are managed using TimePictra, case-sensitive passwords must be enclosed in double-quotes when they are entered; TimePictra does not automatically determine case-sensitivity of passwords nor does it add the double-quotes automatically.

Network Element Status

The software contains dialog boxes that summarize the status of a selected TimeProvider 1000 or 1100 NE. The dialog boxes, the Network Element Status and Status Details dialog boxes, present the selected NE's status visually and as a summarization of certain alarm conditions. The following provides more information on the dialog boxes.

Network Element Status dialog box

The Network Element Status dialog box presents a display which visually represents the front panel of the selected NE. Figure J-1 and Table J-1 briefly explain the Network Element Status dialog box.
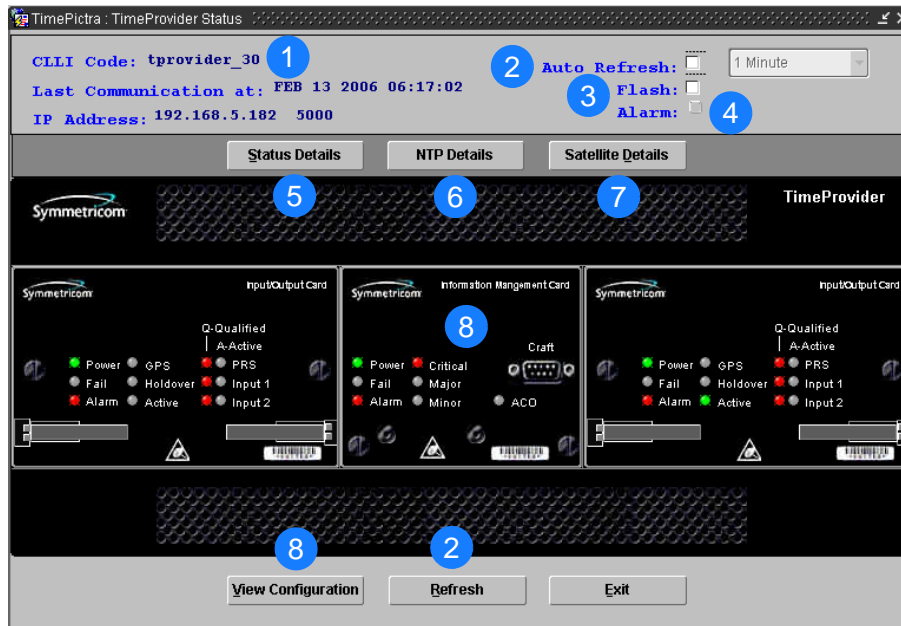
Figure J-1.   TimeProvider 1000/1100 Network Element Status Dialog Box

Table J-1. Network Element Status Dialog Box Description

Item	Description
1	The CLLI (common language location identifier) code of the selected NE is the identifier for the Network Element and is shown in the "CLLI Code" field. The IP address and port over which TimePictra communicates with the selected NE is shown in the "IP Address" field. The "Last Communication at" field contains the date and time at which the last successful communication between TimePictra 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. 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 Auto Refresh interval determines the frequency at which the status display is automatically updated. The default refresh interval is 1 minute and the minimum refresh interval is 1 minute. If the Auto Refresh check-box is selected, the display will be automatically updated at the refresh interval. *Note:* If you are configuring the unit, it is recommended that you *do not* select the Auto Refresh function. The status display can be updated at any time by clicking the Refresh button at the bottom of the screen. *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. When the display is refreshed, if the software detects that the NE has been deleted, a warning message is displayed and then the display closes.
3	If the Flash check-box is selected, the screen's LED indicators flash when the network element's LEDs flash. *Note:* If you are configuring the unit, it is recommended that you *do not* select the Flash function.
4	Clicking the Alarm button invokes an instance of the Alarm Viewer dialog box which contains the alarms currently active in the selected NE.
5	Clicking the Status Details button invokes a separate Status Details dialog box which displays information about the current state and status of the various system components in the selected NE. See Status Details dialog box, on page 543 for more information.
6	Clicking the NTP Details button opens the NTP Details window and displays the NTP peer information.
7	The Satellite Details button invokes the Satellite Details dialog box, as shown in Figure J-5.

Table J-1. Network Element Status Dialog Box Description (Continued)

Item	Description
8	This area visually simulates the panel area of the selected NE. It shows the current status of the various indicators on the NE's front panel. See Status Panel Indicator Descriptions, on page 542 for more information. *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.
9	Clicking the View Configuration button invokes an instance of the View Configuration dialog box in which the current configuration of the selected NE can be viewed.

Status Panel Indicator Descriptions

The following tables briefly explain the status indicators shown for each card in the NE.

Table J-2 explains the status indicators shown for the IMC card.

Table J-2. IMC Card Status Indicators

Indicator	Description
Power	When off, power to the card is not present. When green, power to the card is present.
Fail	When off, no failure has occurred on the card. When red, a failure has occurred on the card.
Alarm	When off, no alarm condition exists on the card. When red, an alarm condition exists on the card.
Critical	When off, no critical alarms exist in the system. When red, a critical alarm condition exists in the system.
Major	When off, no major alarms exist in the system. When red, a major alarm condition exists in the system.
Minor	When off, no minor alarms exist in the system. When yellow, a minor alarm condition exists in the system.
ACO	When off, alarm cutoff has either not been activated, or had been activated but subsequently was cleared due to the generation of new alarms. When green, alarm cutoff has been activated and no new alarms have been generated.

Table J-3 explains the status indicators shown for the IOC cards.

Table J-3. IOC Card Status Indicators

Indicator	Description
Power	When off, power to the card is not present. When green, power to the card is present. When flashing green, the card is warming up.
Fail	When off, no failure has occurred on the card. When red, a failure has occurred on the card.
Alarm	When off, no alarm condition exists on the card. When red, an alarm condition exists on the card.
GPS	GPS is unsupported in the current release of software.
Holdover	When off, the card is tracking at least one input. When red, the card is in Holdover mode (not tracking any inputs).
Active	When off, the card is in the Standby mode. When green, the card is active.
PRS, Input 1, Input 2 Q-Qualified	When off, the associated reference input is disabled. When green, the associated reference input is enabled and qualified. When red, the associated reference input is enabled, but not qualified.
PRS, Input 1, Input 2 A-Active	When off, the associated reference input is not active. When green, the associated reference input is active.

Status Details dialog box

The Status Details dialog box displays information about the current state and status of the various system components in the selected NE. Figure J-2 shows the dialog box and Table J-4 gives a brief description of each field in the dialog box.
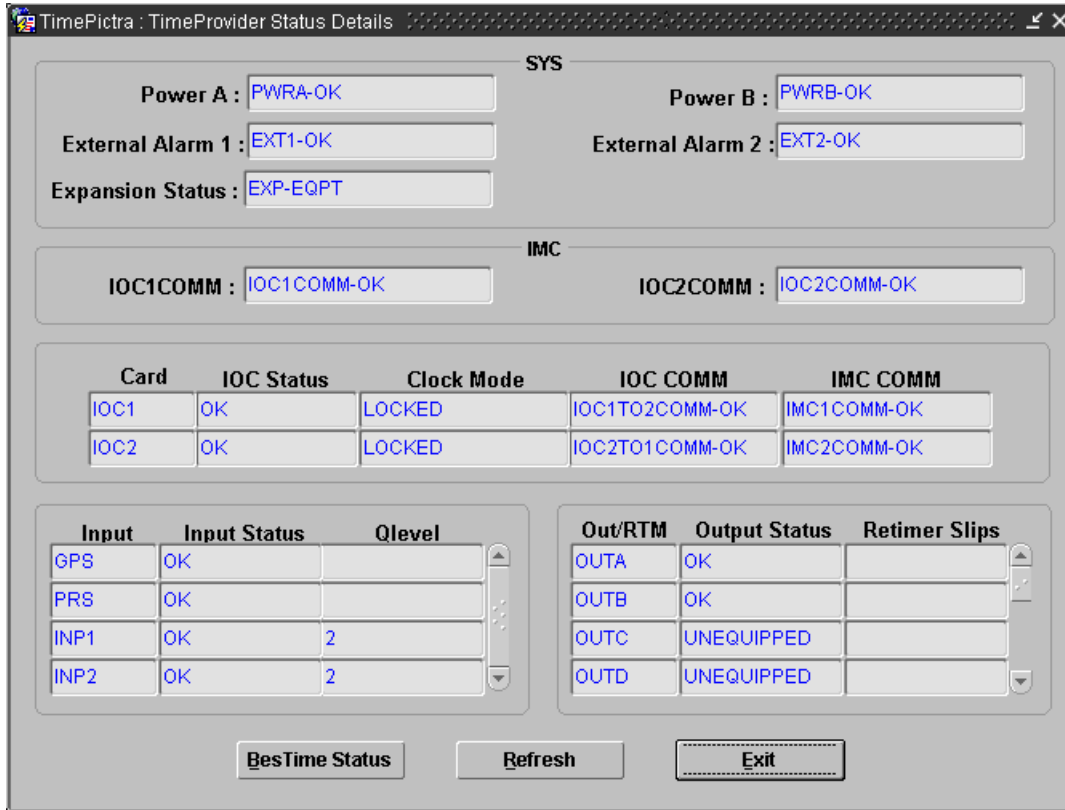
Figure J-2.   TimeProvider 1000/1100 Status Details Dialog Box

Table J-4. Status Details Dialog Box Fields

Field	Description
SYS	
Power A Power B	Indicates if the IMC has detected a loss of power at the Power A(B) connection. The possible returned values can be either PWRA(B)-OK (no PWRA(B) alarm is currently active), or PWRA(B)-ALM (a PWRA(B) alarm is currently active).
External Alarm 1 External Alarm 2	Indicates if external equipment is currently generating alarm(s). The possible returned values can be either EXT1(2)-OK (no EXTALM1(2) alarm is currently active), or EXT1(2)-ALM (an EXTALM1(2) alarm is currently active).
Expansion Status	Indicates if the connection to the expansion output panel has been lost. The possible returned values can be either EXP-OK (no EXPFAIL alarm is currently active), or EXP-ALM (an EXPFAIL alarm is currently active).
IMC	
IOC1COMM IOC2COMM	Indicates if an IOC1(2) communication alarm currently is active. The possible returned values can be either IOC1(2)COMM-OK (no IOC1(2)COMM alarm is currently active), or IOC1(2)COMM-ALM (an IOC1(2)COMM alarm is currently active).

Table J-4. Status Details Dialog Box Fields (Continued)

Field	Description
IOC1 and IOC2	
Note: The IOC1 and IOC2 status conditions in this section are reported by the IOC modules, but are stored in the IMC module of the TimeProvider. The IMC module reports the last status conditions it received from the IOC modules. If a given IOC module is removed from the TimeProvider or develops a communication problem, the IOC states as reported by the IMC might not be accurate.	
Card	Indicates the IOC1 or IOC2 module.
IOC Status	The current status of the specified IOC module. The status can be either OK (no IOC alarms are currently active for the specified module), or ALM (one or more IOC alarms are currently active for the specified module).
Clock Mode	The current mode of the local oscillator on the specified IOC module.
IOC COMM	Indicates if a communication alarm from the IOC1(2) to the IOC2(1) module currently is active. The possible returned values can be either IOC1(2)TO2(1)COMM-OK (no IOC1(2)TO2(1)COMM alarm is currently active), or IOC1(2)TO2(1)COMM-ALM (an IOC1(2)TO2(1)COMM alarm is currently active).
IMC COMM	Indicates if a communication alarm from the IMC to the IOC2(1) module currently is active. The possible returned values can be either IMC1(2)COMM-OK (no IMC1(2)COMM alarm is currently active), or IMC1(2)COMM-ALM (an IMC1(2)COMM alarm is currently active).
GPS, PRS, INP1, and INP2	
Input Status	The current status of the specified input. The status can be either OK (no alarms are currently active for the specified input), or ALM (one or more alarms are currently active for the specified input).
QLevel	The current Quality Level of INP1 or INP2. This value determines the output SSM. If the values for INP1 and INP2 are the same, then a non-revertive switching strategy is in place. If the values for INP1 and INP2 are unique, then a revertive switching strategy is in place.
OUTA, OUTB, OUTC, and OUTD	
Output Status	The current status of the specified output group. The status can be either OK (no alarms are currently active for the specified output group), or ALM (one or more alarms are currently active for the specified output group).
RTMA, RTMB, RTMC, and RTMD	
Output Status	The current status of the specified output group. The status can be either OK (no alarms are currently active for the specified output group), or ALM (one or more alarms are currently active for the specified output group).
Retimer Slips	The Retimer Slips shows the number of slips in the specified output group.

Table J-4. Status Details Dialog Box Fields (Continued)

Field	Description
E422A, E422B, E422C, and E422D	
Output Status	The current status of the specified output group. The status can be either OK (no alarms are currently active for the specified output group), or ALM (one or more alarms are currently active for the specified output group).

The BesTime Status button displays the BesTime Status window, as shown in Figure J-3. Click Refresh to refresh the values, and click Exit to close the window.
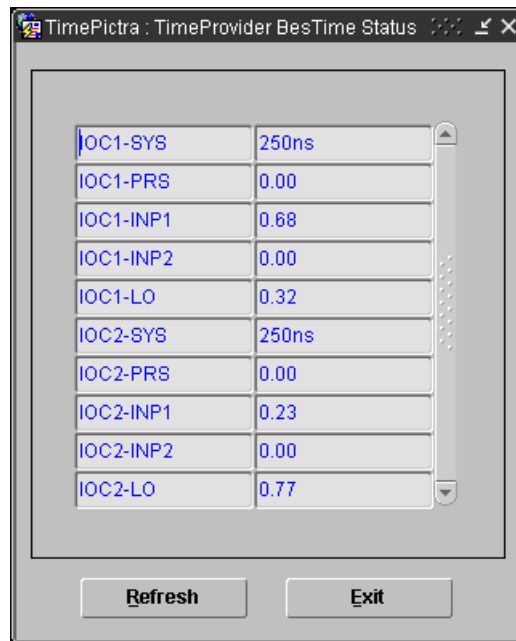
Figure J-3.   BesTime Status Window

NTP Details dialog box

The NTP Details window provides information about the NTP server and client.

NTP Details

IP	Stratum	Status	Precision	Delay	Offset	Dispersion	Jitter
172.168.5.196	1	candidat	-9	62.005	-62.136	1.971	2.871
69.25.96.145	1	syspeer	-19	7.194	-60.936	0.027	0.044
192.196.56.33	16	reject	-16	0.000	0.000	0.000	4000.000
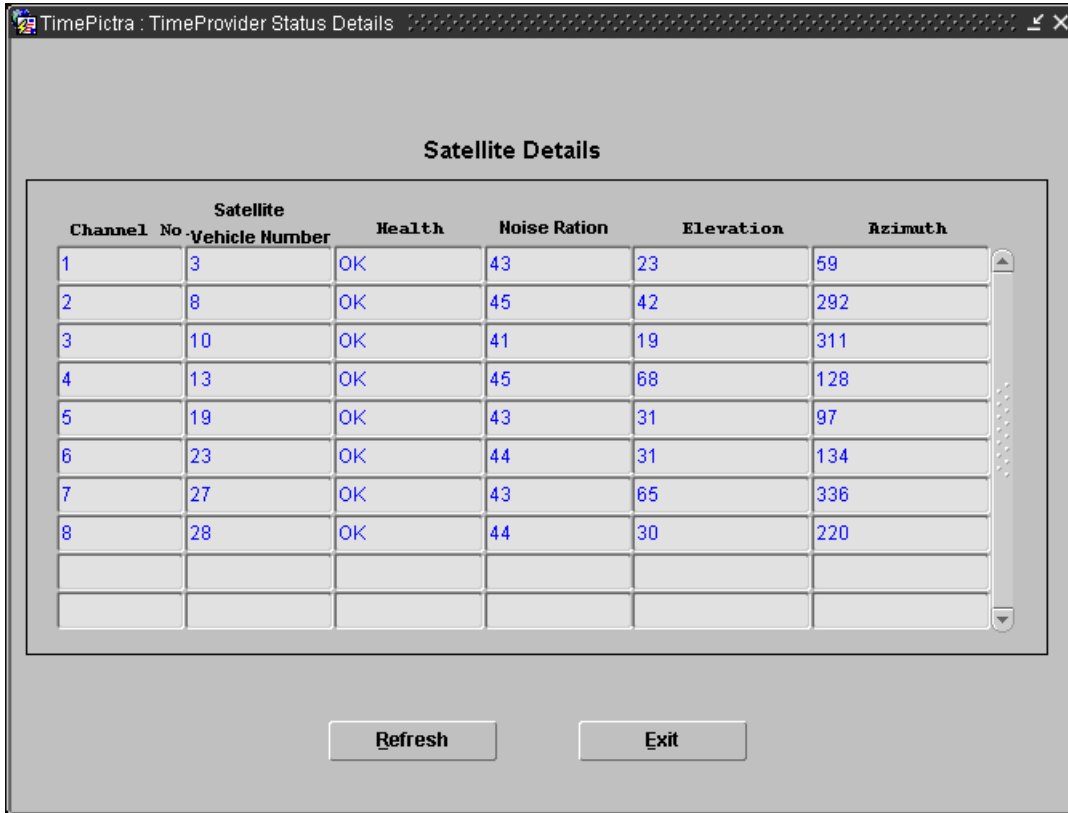
Figure J-4.   Satellite Details Window

Table J-5. NTP Details Dialog Box Fields

Field	Description
IP	The IP address of the NTP server.
Stratum	The stratum level of the NTP server.
Status	The status of the NTP server.
Precision	The precision value of the NTP server.
Delay	The client's calculated root delay value for the NTP server.
Offset	The client's calculated time offset value for the NTP server.
Dispersion	The client's calculated root dispersion value for the NTP server.
Jitter	The client's calculated network jitter.

Satellite Details dialog box

The Satellite Details window provides information on the current status of all GPS satellites that the TimeProvider is tracking. Click the Satellite Details button to view this window, which appears as shown in Figure J-5.

Figure J-5.   Satellite Details Window

Network Element Settings

This section briefly explains the action panel features (settings and buttons) within each category of settings for the TimeProvider 1000 and TimeProvider 1100 NEs. The sub-sections within this section reflect the setting categories that can be displayed and modified in the View Configuration and Modify Configuration dialog boxes:

- Network Element (NE) settings

- IMC (Information Management Card) settings

- IOC (Input/Output Card) settings

- Event settings

- Command settings

> **Note:** GPS and Threshold settings are not supported in the current software release.

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

There are several NE-level settings that are configurable in this dialog box. Figure J-6 shows the layout of the action panel for Network Element settings. Table J-6 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.

Note: TL1 commands are not case sensitive unless specified as such. To specify a string as case sensitive, the string must be enclosed in double quotes. For details, refer to the *TimeProvider TL1 Reference Guide*.

Figure J-6.   Action Panel – Network Element Settings

Table J-6. Network Element Settings

Setting/Button	AID	Description	Command/Keyword[1]
CC Align	SYS	For TimeProvider 2.1 or higher. Aligns the CC output with the reference.	CCALIGN (keyword)
Clear Delay	SYS	The time that elapses after a detected fault is cleared and the resulting alarm condition is cleared.	CLRDELAY (keyword)
Comm Timeout	SYS	The length of user command inactivity time prior to logoff of the user.	INACTTIME (keyword)
Elevate Alarm	SYS	Specifies whether the system has the ability to elevate minor alarms to major, and major alarms to critical after the system elevation time has elapsed.	ELEVTIME (keyword)
Equipment Type	None	The Network Equipment type for the NE.	RTRV-NETYPE (command)
Fault Delay	SYS	The amount of time that elapses from when a fault is detected to when the related alarm condition is declared.	FLTDELAY (keyword)
Input Ref	SYS	The input reference that is selected when the reference mode is set to forced.	INPREF (keyword)
Local Offset	SYS	The hours and minutes that local time is offset from UTC.	LOCTIM (keyword)
Login/Logout Echo	SYS	Indicates if login and logout events are echoed to the local terminal.	LOGECHO (keyword)
Protocol	None	The protocol with which the NE communicates with TimePictra	None
Ref Mode	SYS	The reference selection mode.	REFMODE (keyword)
Reset	IMC, IOC	Resets the specified card.	RESET (keyword)
Remove Equipment	SYS	Removes the specified card.	RMV-EQPT (command) IOCm,OUTg, RTMg, EXPN, TPIU (keyword)
SID	None	The TimeProvider's source identifier	SIDCHG (keyword)
Span Type	INP	For TimeProvider 1.1 The input span type.	SPANTYPE (keyword)
System Date	SYS	The year, month, and day set for the system.	DATCHG (keyword)
System Mode	None	The TimeProvider's operating mode	SYSMODE (keyword)
Time	SYS	The hours, minutes, and seconds set for the system.	TIMCHG (keyword)

Table J-6. Network Element Settings (Continued)

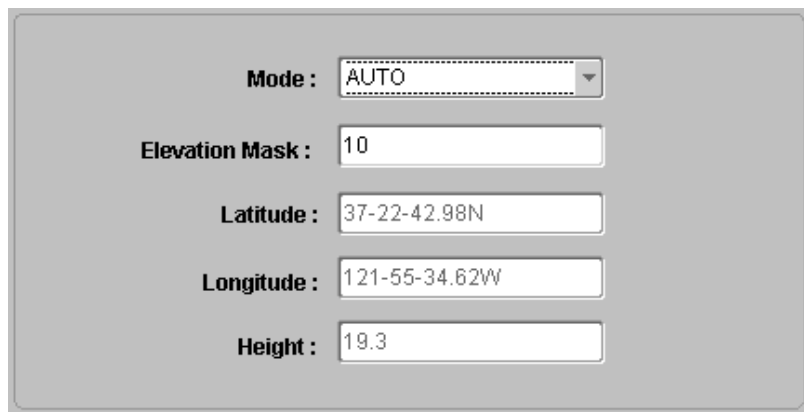| Setting/Button	AID	Description	Command/Keyword[1]
Buttons			
Inventory	None	Invokes the NE Inventory dialog box. Refer to Chapter 8, Inventory Management for details on the NE Inventory dialog box.	None
Status	None	Invokes the Network Element Status dialog box. See Network Element Status dialog box, on page 540 for further details.	None

Note:

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

IMC Settings

The Information Management Card (IMC) module manages communications between the two IOC modules and the NE's communication ports, and acts as an alarm interface. Several IMC-related settings are configurable in this dialog box. Figure J-7 shows the layout of the action panel for IMC settings. Table J-7 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.

Figure J-7.   Action Panel – IMC Settings

Table J-7. IMC Settings

Setting/Button	AID	Description	Command/Keyword[1]
Baud	COML, COMR	The specified serial port's baud rate setting.	BAUD (keyword)
Flow	COML, COMR	The type of serial flow control on the specified serial port.	FLOW (keyword)
IP Address	COMI	The IP address of the NE.	IPADDR (keyword)
IP Gate	COMI	The IP address of the default gateway.	IPGATE (keyword)
IP Subnet	COMI	The subnet mask.	IPSUBNET (keyword)
Part Number	IMC	The IMC module's part number.	RTRV-INV (command)
Serial Number	IMC	The IMC module's serial number.	RTRV-INV (command)

Note:

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

IOC Settings

The Input/Output Card (IOC) modules provide input monitoring, selection, and holdover functionality. The IOC modules receive input reference signals from the NE's input module, determine input reference quality, and select the most appropriate input signal to use as the active reference. During normal operation, the active IOC module tracks the selected active input reference signal, and produces precise output signals that track the selected input reference. If in the "Auto" reference selection mode and the selected input reference is disqualified, the IOC module will select another qualified input signal as the reference. If all input references fail, the IOC module goes into Holdover mode using its own oscillator as the system reference.

There are several IOC module settings that are configurable in this dialog box. Figure J-8 shows the layout of the action panel for IOC settings. Table J-8 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.

Figure J-8.   Action Panel – IOC Settings

Table J-8. IOC Settings

Setting/Button	AID	Description	Command/Keyword[1]
Card			
Serial Number	IOC1, IOC2	The specified IOC module's serial number.	RTRV-INV (command)
Part Number	IOC1, IOC2	The specified IOC module's part number.	RTRV-INV (command)
IOC State	IOC1, IOC2	The service mode of the specified IOC module.	IOCSTATE (keyword)
IOC Mode	IOC1, IOC2	Specifies if the specified IOC module is active.	IOCMODE (keyword)
Clock Type	IOC1, IOC2	The mode of the local oscillator on the specified IOC module.	CLKTYPE (keyword)
Input			
Input State	INP1, INP2, PRS, GPS	The state of the specified input.	INSTATE (keyword)
CRC Enable	INP1	Specifies if the input is provisioned to use CRC4 checking.	CRCENA (keyword)
SSM Enable	INP1	Specifies if the input is provisioned to read the received SSM.	SSMENA (keyword)

Table J-8. IOC Settings (Continued)

Setting/Button	AID	Description	Command/Keyword[1]
Quality Level	INP1, INP2, PRS, GPS	The provisioned quality level for the specified input.	QLEVEL (keyword)
Frame Type	INP1, INP2, PRS	The frame signal type provisioned for the specified input.	FRMTYPE (keyword)
Priority	INP1, INP2, PRS, GPS	The provisioned priority level for the specified input.	PRIORITY (keyword)
SSM Bit	INP1	Specifies the E1 (CCS) SSM bit position the input is provisioned to read.	SSMBIT (keyword)

Output/Retimer

Setting/Button	AID	Description	Command/Keyword[1]
Output State	OUTn, RTMn, E422	The state of the specified output group.	OUTSTATE (keyword)
Free-Run Fault	OUTn, RTMn, E422	The type of signal generated on the specified output group when the local oscillator enters free-run mode.	FREEFLT (keyword)
Frame Type	OUTn, E422	The framing type that the specified output group is provisioned to generate.	FRMTYPE (keyword)
SSM Enable	OUTn	Specifies if the ESF or E1 (CCS) outputs generate SSMs.	SSMENA (keyword)
Holdover Fault	OUTn, RTMn, E422	The type of signal generated on the specified output group when the local oscillator enters holdover mode.	HOLDFLT (keyword)
Line Buildout Len	RTMn	The line buildout value of the specified RTM port.	RTMLBO (keyword)
SSM Bit	OUTn	Specifies the E1 (CCS) SSM bit position the input is provisioned to read.	SSMBIT (keyword)

Note:

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

NTP Settings

The Network Time Protocol (NTP) is used to synchronize the time of a computer client or server to another server or reference time source. Figure J-9 and Table J-9 briefly explain the NTP action panel. Figure J-11, Figure J-12, and Table J-10 describe the broadcast mask and server settings.

Figure J-9.   Action Panel – NTP Settings

Figure J-10. NTP Key Generation
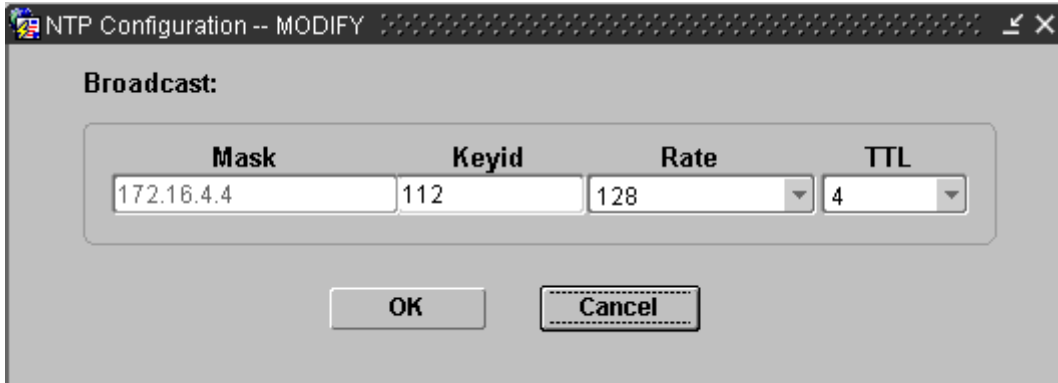
Figure J-11. NTP Broadcast Mask Settings
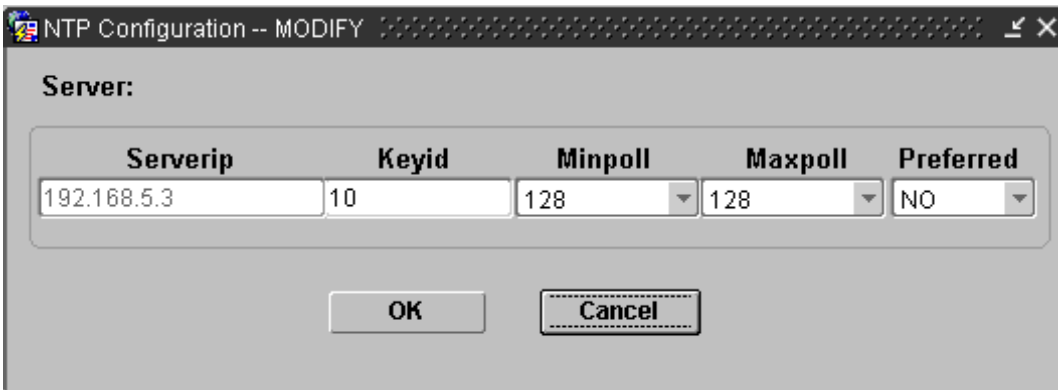
Figure J-12. NTP Server Settings

Table J-9. NTP Settings Dialog Box Description

Item	Description
1	Clicking the Act Feature button enables the NTP function.
2	The Authentication drop-down box allows you to enable or disable MD5 authentication.
3	Clicking the Generate Key button allows you to add, modify, or delete a key ID and key sequence. Click the Add, Modify, or Delete button to open the Key Generation window (see Figure J-10).
4	This section allows you to add a new broadcast IP address, delete an existing address, or modify the information related to the address. When you open the broadcast window you can enter a broadcast or multicast IP mask, an authentication ID, select the multicast packet rate in seconds, and select the packet time-to-live is the number of hops used for broadcast mode (see Figure J-11).

Table J-9. NTP Settings Dialog Box Description (Continued)

Item	Description
5	This section allows you to add a new server IP address, delete an existing address, or modify the information related to the address. When you open the server window you can enter a server IP address, enter the authentication ID, select the minimum amount of time in seconds between server time requests, select the maximum amount of time in seconds between server time requests, and select the preferred server (see Figure J-12).

Table J-10. NTP Settings

Setting	AID	Description	Command/Keyword[1]
Act Feature	NTP	Enables the NTP feature	ACT-FEATURE (command)
Authentication	NTP	Enable or disable NTP Authentication	AUTHEN (keyword)
Generate Key			
KEYID	NTP	The Authentication ID (1 to 65534)	ED-EQPT (command)
KEY	NTP	The Authentication key (32-character ASCII variable)	ED-EQPT (command)
Broadcast			
Add/Modify/ Delete	NTP	Broadcast masks to be added, modified, or deleted (up to 4 network masks)	ED-EQPT (command)
Mask	NTP	The Broadcast or Multicast IP Mask	MASK (keyword)
Keyid	NTP	The Authentication ID	KEYID (keyword)
Rate	NTP	The Multicast packet rate in seconds	RATE (keyword)
TTL	NTP	The Packet Time-to-Live is the number of hops used for Broadcast mode	TTL (keyword)
Server			
Add/Modify/ Delete	NTP	The SERVERIP address to be added, modified, or deleted	ED-EQPT (command)
Serverip	NTP	The NTP Server IP address	SERVERIP (keyword)
Keyid	NTP	The Authentication ID	KEYID (keyword)
Minpoll	NTP	The Minimum amount of time in seconds between server time requests	MINPOLL (keyword)

Table J-10. NTP Settings (Continued)

Setting	AID	Description	Command/Keyword[1]
Maxpoll	NTP	The Maximum amount of time in seconds between server time requests	MAXPOLL (keyword)
Preferred	NTP	The NTP Preferred server	PREFERRED (keyword)

Note:

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

CID Settings

The TimeProvider uses Circuit IDs (CIDs) to identify inputs and outputs to the unit.

There is one CID setting that is configurable in this dialog box. Figure J-14 shows the layout of the action panel for CID settings. Table J-12 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.

AID	Circuit ID
E422A-1	
E422A-2	e422a-2 port
E422A-3	
E422A-4	e422a-4 port
E422A-5	
E422A-6	
E422A-7	
E422A-8	
E422B-1	
E422B-2	
E422B-3	
E422B-4	
E422B-5	

Figure J-13. Action Panel – CID Settings

Table J-11. CID Settings

Setting	AID	Description	Command/Keyword[1]
AID	None	Specifies the AID of each input or output in the unit. This list is generated automatically.	N/A
Circuit ID	GPS PRS INP OUT RTM E422	Specifies the CIrcuit ID of the specified Line Retimer Unit.	CKTIDCHG (keyword)

Note:

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

GPS Settings

The TimeProvider can accept GPS information from an antenna connected to the TPIU.

There are several GPS settings that are configurable in this dialog box. Figure J-14 shows the layout of the action panel for GPS settings. Table J-12 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.

Figure J-14. Action Panel – GPS Settings

Table J-12. GPS Settings

Setting/Button	AID	Description	Command/Keyword[1]
Mode	GPS	Specifies whether the location of the GPS receiver is determined automatically or manually.	MODE (keyword)
Elevation Mask	GPS	Specifies the elevation of satellites below which their data is masked.	ELEVMASK (keyword)
Latitude	GPS	Specifies the E-W location of the GPS receiver	POS (keyword)
Longitude	GPS	Specifies the N-S location of the GPS receiver	POS (keyword)
Height	GPS	Specifies the altitude of the GPS receiver	POS (keyword)

Note:

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

Threshold Settings

The TimeProvider allows you to set standard or customized thresholds for alarms.

There are several threshold settings that are configurable in this dialog box. Figure J-15 shows the layout of the action panel for threshold settings. Table J-13 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.

Figure J-15. Action Panel – Threshold Settings

Table J-13. Threshold Settings

Setting/Button	AID	Description	Command/Keyword[1]
AID	GPS, INPp, PRS, RTMm	Specifies the AID to which the threshold is to be applied.	
Mask	GPS, INPp, PRS, RTMm	Specifies a pre-defined mask.	SET-TH (command)
MTIE-x	GPS, INPp, PRS, RTMm	Specifies the E-W location of the GPS receiver	
FFOFF-60	INPp, PRS	Specifies the FFOFF-60 threshold	

Note:

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

Events Settings

The TimeProvider 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 J-16 shows the layout of the action panel for Event settings. Table J-14 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.
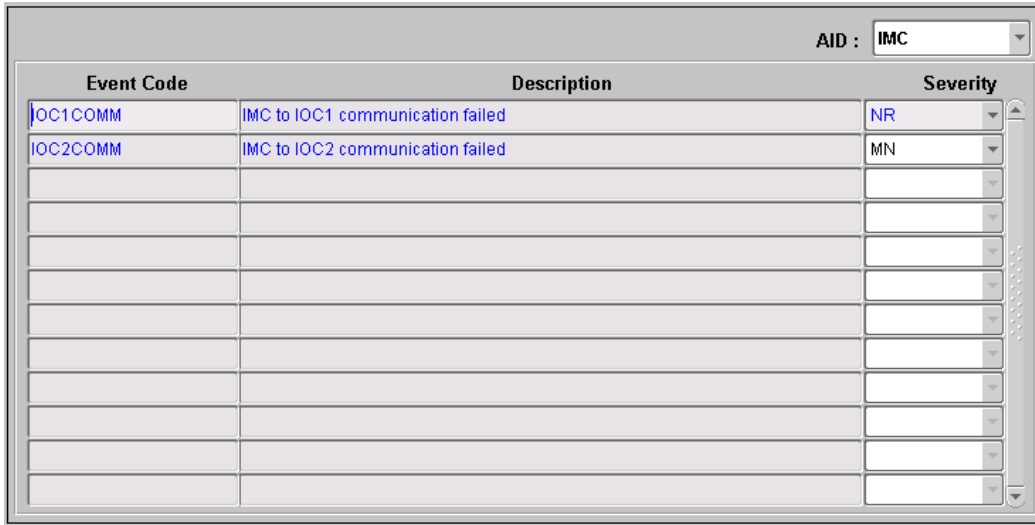
Figure J-16. Action Panel – Events Settings

Table J-14. Event Settings

Setting/Button	AID[1]	Description	Command/Keyword[2]
Description	E422, GPS, IMC, INP1/2, IOC1/2, OUT, PRS, RTM, SYS	The description in this column describes the event condition to which the Severity setting applies.	None
Event Code	E422, GPS, IMC, INP1/2, IOC1/2, OUT, PRS, RTM, SYS	The code in this column indicates the event condition to which the setting in the Severity column applies.	SET-ATTR (command)
Severity	E422, GPS, IMC, INP1/2, IOC1/2, OUT, PRS, RTM, SYS	The severity of the alarm or event indicated in the row.	SET-ATTR (command)

Note:

[1] The information available in the Event Code, Description, and Severity columns depends on the Aid that is chosen in the AID drop-down list.

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

Command Settings

TimePictra 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 craft port using a dedicated terminal or craft terminal software.

Every TimeProvider 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 most commands can be changed in this dialog box. Figure J-17 shows the layout of the action panel for Command settings. Table J-15 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.

Command	Description	Security
ACT-SWDL	Activates download mode of operation	None
ACT-USER	Activate user	None
CANC-USER	Cancel user (log off)	None
CPY-MEM	Save one module's istate to another module	None
DLT-SECU	Clears all authorized users from system	Security
DLT-USER-SECU	Deletes user's security parameters	Security
ED-CMD-SECU	Change security level of a command	Admin
ED-DAT	Change IMC's current Date, Time, Local Offset	Admin
ED-EQPT	Edit equipment (card) parameters	Admin
ED-PID	Edit current user's password	User
ED-SYNC	Edit input/output channel parameters	Admin
ED-USER-SECU	Edit user's security parameters	Security
ENT-PID	Edit user's password	Security

Figure J-17. Action Panel – Command Settings

Table J-15. Command Settings

Setting/Button	AID	Description	COMMAND/KEYWORD[1]
Command	None	The syntax in this column indicates the command to which the setting in the Security column applies.	ED-CMD-SECU (command)
Description	None	The description in this column describes the command to which the setting in the Security column applies.	None
Security	None	The access level of the command indicated in the row.	ED-CMD-SECU (command)

Note:

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

Firmware Downloads

TimePictra contains functionality that enables the downloading of firmware upgrades to the various cards on a TimeProvider 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 J-18 and Table J-16 briefly explain the Firmware Download dialog box.
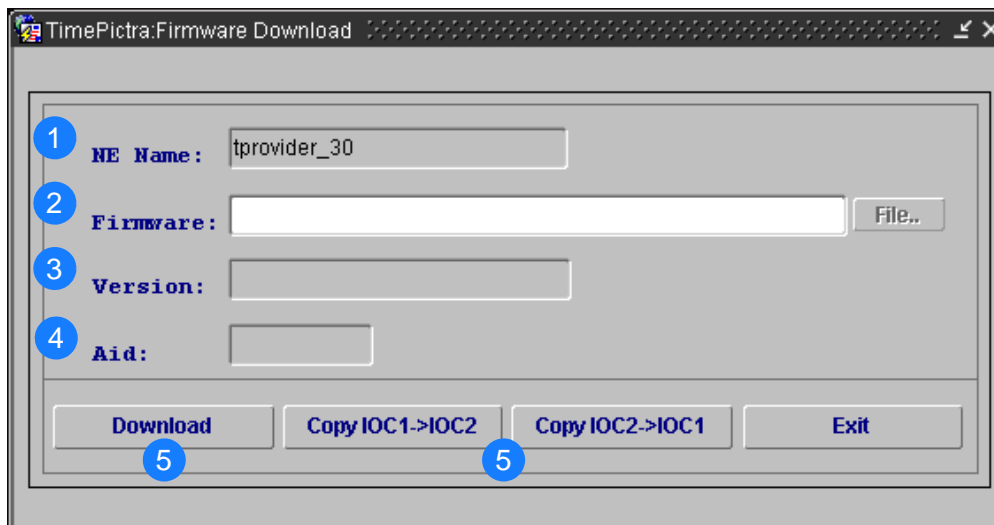
Figure J-18. Firmware Download Dialog Box

Table J-16. 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.
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	This read-only field displays the version that will be downloaded, based on the filename specified above.
4	This read-only field displays the aid that the download will be applied to.
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.
6	The firmware in one IOC can be transferred to the other IOC by clicking one of these buttons.

Downloading Firmware to the NE

Use the following procedure to download firmware upgrade files to target cards on the TimeProvider NE.

> **Note:** Users of the Security class can perform this procedure.

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 <u>F</u>irmware Download... from the <u>C</u>onfig 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 version.

Note: TimePictra determines the validity of firmware files according to file naming conventions.

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6. Specify the aid of the IOC that is to receive the firmware download.

7. 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:
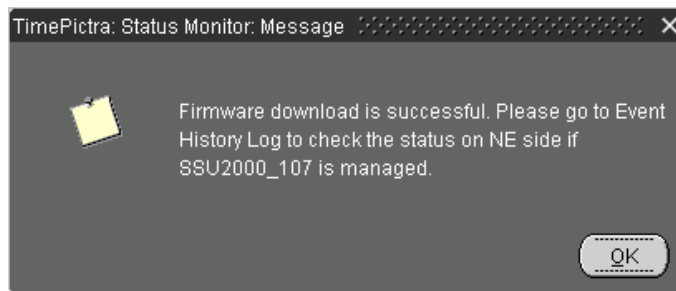
Notes:

1. 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.

2. TimePictra opens a separate connection to the TimeProvider specifically for the firmware download, and the TimeProvider 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 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.

3. After downloading to the IMC, all IP addresses are lost. You must reconfigure the IP addresses using a serial port connection.

Appendix K NE Information - 55300A GPS Telecom Primary Reference Source

This chapter provides information that is specific to the 55300A GPS Telecom Primary Reference Source.

In This Appendix

- Network Element Status
- Network Element Settings

Network Element Status

The software contains a dialog box that summarizes the status of a selected 55300A GPS Telecom Primary Reference Source. This dialog box, the Network Element Status dialog box, presents a display which visually resembles the front panel of 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. Figure K-1 and Table K-1 briefly explain the Network Element Status dialog box for 55300A NEs.
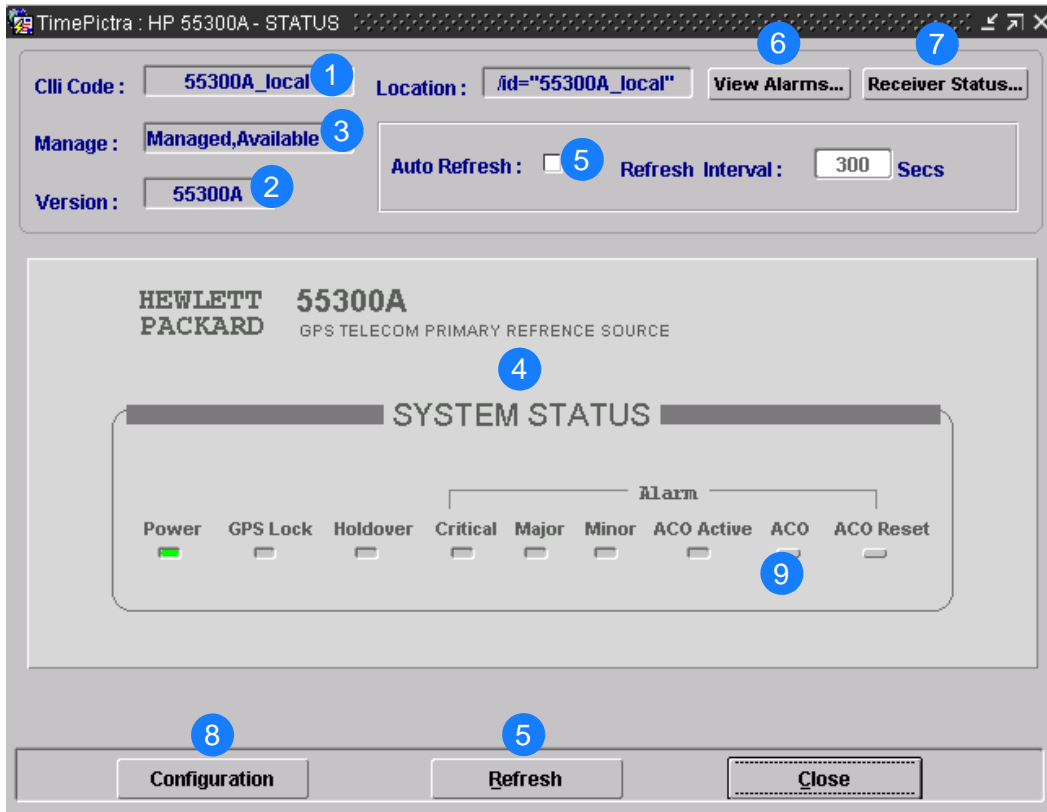
Figure K-1. 55300A Network Element Status Dialog Box - Panel Details

Table K-1. 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.
4	This area functionally simulates the panel area of the selected NE. It shows the current status of the various indicators on the NE's front panel. *Notes:* 1. If the selected NE is unmanaged or unavailable, the Network Element Status dialog box cannot be invoked. 2. If the selected NE becomes unavailable when the Network Element Status dialog box is open, the display area will be blank and the message Could not Retrieve Status... will be displayed the next time it is refreshed.
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 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 had been deleted, a warning message is displayed and then the display closes.
6	Clicking the View Alarms... button invokes an instance of the Alarm Viewer dialog box which contains the alarms currently active in the NE.
7	Clicking the Receiver Status... button invokes the GPS Receiver Data dialog box. Refer to GPS Receiver Data dialog box, on page 572 for more information.
8	Clicking the Configuration Button invokes an instance of the View Configuration dialog box in which the current configuration of the NE can be viewed.
9	When an alarm condition exists and this ACO button is clicked, all audible alarms are silenced.

GPS Receiver Data dialog box

When the Receiver Status... button in the Network Element Status dialog box is clicked, the GPS Receiver Data dialog box is invoked. The GPS Receiver Data dialog box displays the status of the selected NE's receiver. The dialog box contains a Refresh button so that the contents of the dialog box can be refreshed after the dialog box has been invoked. Figure K-2 shows the GPS Receiver Data dialog box.

Note: Refer to the chapter entitled "Using the Receiver Status Screen" in the *GPS Telecom PRS User's Guide* for details on the information presented in the GPS Receiver Data dialog box.
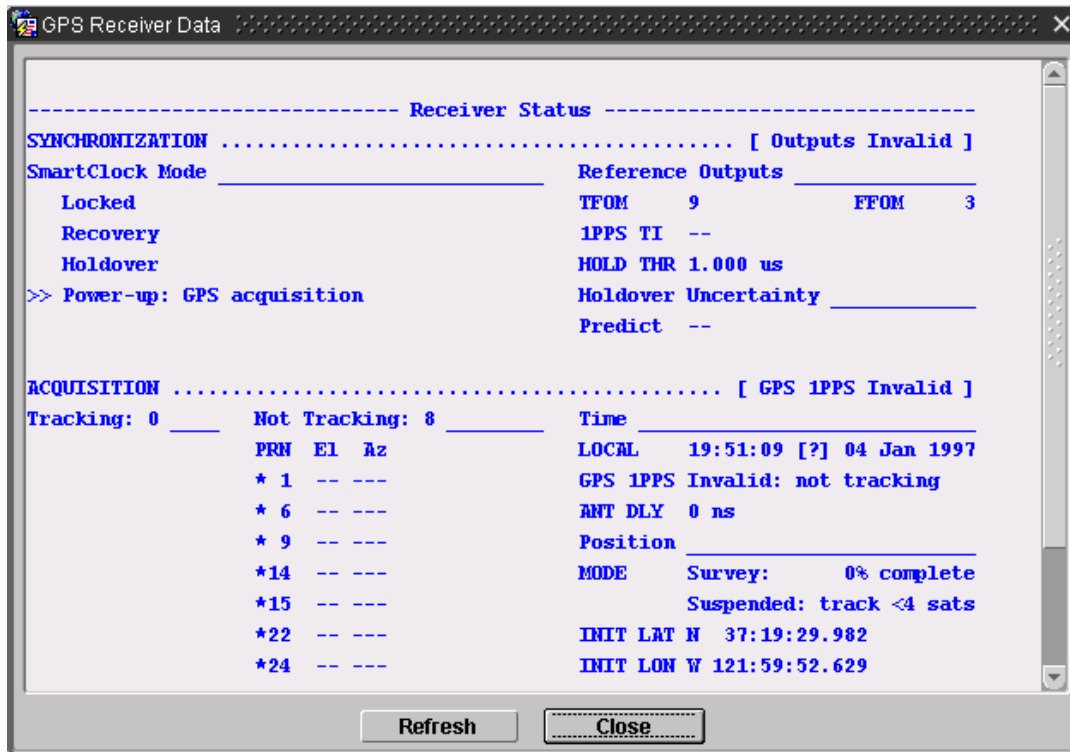
Figure K-2.   GPS Receiver Data Dialog Box

Status Panel Indicator Descriptions

Table K-2 explains the status indicators shown for the panel of the NE.

Table K-2. Status Indicators

Indicator	Description
Power	When off, input power is not supplied to the NE. When green, input power is supplied to the NE.
GPS Lock	When off, the below ("green") conditions are not being met. When green, the NE is tracking satellites and has phase-locked its internal reference to the reference time derived from satellite data.
Holdover	When off, the NE is not in holdover mode. When yellow, the NE has gone into holdover mode after achieving lock at least once.
CRT[1]	When off, there is no critical alarm. When red, a critical alarm other than a critical Holdover alarm has occurred.
MAJ[1]	When off, there is no major alarm. When orange, a major alarm has occurred.
MIN[1]	When off, there is no minor alarm. When yellow, a minor alarm has occurred.
ACO Active (indicator)	*This indicator is always shown as inactive.*
ACO (button)	When this button is clicked, audible local alarms are silenced.
ACO Reset (button)	*This button is always shown as inactive.*

Note:

[1] Click 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 55300A GPS Telecom 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:

- GPS Information

- GPS Parameters

- Events

- Communications

- Commands

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.

GPS Information

This action panel contains several settings of a general nature that are related to the 55300A Network Element. Figure K-3 shows the layout of the action panel for GPS Information. Table K-3 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the 55300A documentation where more detailed information can be found.

Figure K-3.   Action Panel - GPS Information

Table K-3. GPS Information

Setting/Button	Description	COMMAND/KEYWORD[1]
Address	The IP Address of the NE.	*None.*
Clli Code	The CLLI (common language location identifier) code of the NE.	*None.*
Company	The company to which the NE is registered.	RTRV-NETYPE (command)
Date	The initial date set on the NE.	INITDATE (keyword)
Equipment Type	The NE's equipment type.	RTRV-NETYPE (command)
Last Alarm Sync Time	The date and time at which the alarm synchronization process last ran.	*None.*
Last Communication Time	The date and time at which the last successful communication between the software and the NE took place.	*None.*
Location	The fully distinguished name (FDN) of the NE.	*None.*
Managed	A report of whether or not the NE is currently Managed, Available, Unavailable, etc.	*None.*
Model	The model of the NE.	RTRV-NETYPE (command)
NeType	The type of NE.	RTRV-NETYPE (command)

Table K-3. GPS Information (Continued)

Setting/Button	Description	COMMAND/KEYWORD[1]
Port	The port over which IP communications take place.	*None.*
Protocol	The communications protocol used by the NE.	*None.*
Serial Number	The serial number of the NE.	*None.*
SID	The system identifier (SID) of the NE.	RTRV-SID (command) SET_SID (command)
Software Revision	The firmware version used by the NE.	RTRV-NETYPE (command)
Time	The initial time set in the NE.	INITTIME (keyword)

Note:

[1] Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55300A documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

GPS Parameters

This action panel contains several settings that are specifically related to the GPS receiver and related circuitry. Figure K-4 shows the layout of the action panel for GPS Parameters. Table K-4 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the 55300A documentation where more detailed information can be found.
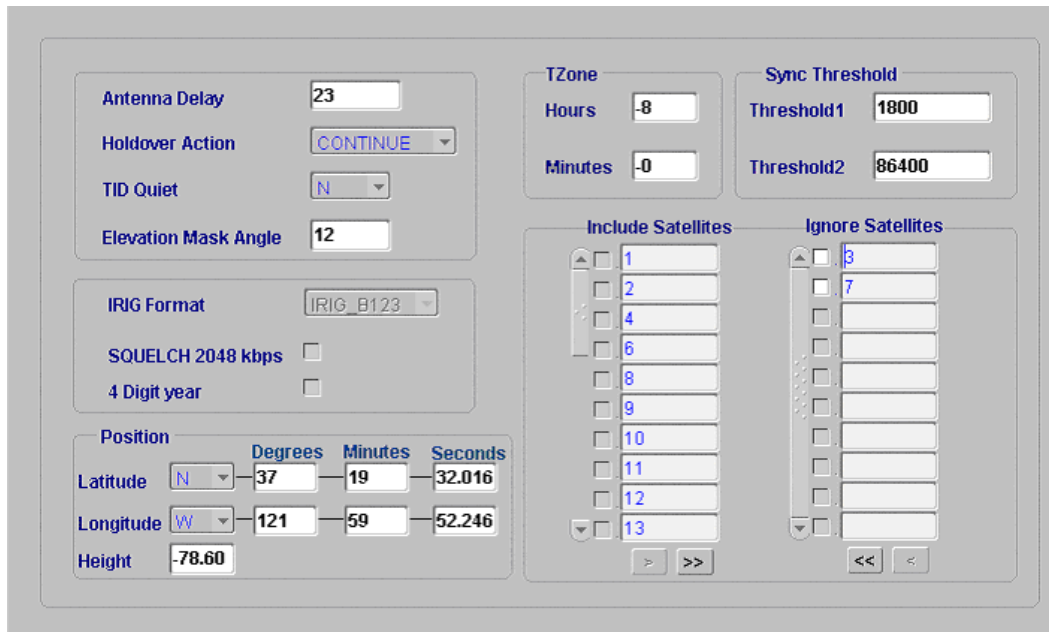
Figure K-4.   Action Panel - GPS Parameters

Table K-4. GPS Parameters

Setting/Button	Description	COMMAND/KEYWORD[1]
4 Digit Year[2]	The manner in which the year is displayed in the header line of output messages.	Y2KEXT (keyword)
Antenna Delay	The antenna delay value, in nanoseconds, used to compensate for antenna cable delay.	ADEL (keyword)
Elevation Mask Angle	The elevation mask angle, in degrees, below which the NE ignores satellites.	EMANGLE (keyword)
Height	The height above mean sea level, in meters, of the NE.	POS (keyword)
Holdover Action	The action to be taken by the NE when the holdover action duration threshold 2 has been exceeded.	HOLDACT (keyword)
Hours	The two-digit hours from GMT used by the NE to report local time.	TZONE (keyword)
Ignore Satellites	The list of satellites to be ignored by the NE.	IGNORE (keyword)
Include Satellites	The list of satellites to be included by the NE.	INCLUDE (keyword)
IRIG Format[2]	The timecode format.	IRIGFORMAT (keyword)
Latitude	The latitude of the NE.	POS (keyword)
Longitude	The longitude of the NE.	POS (keyword)
Minutes	The two-digit minutes from GMT used by the NE to report local time.	TZONE (keyword)
SQUELCH 2048 kbps[2]	Determines whether the 2048 kbps output is squelched or unsqulched when the NE is in startup mode.	STARTSQUEL (keyword)
Threshold1	The holdover action duration threshold 1, in seconds.	THRESHOLD1 (keyword)
Threshold2	The holdover action duration threshold 2, in seconds.	THRESHOLD2 (keyword)
TID Quiet	Determines whether or not a DENY response is issued by the NE when the <tid> specified in a TL1 command does not match the NE's <sid>.	TIDQUIET (keyword)

Note:

[1] Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55300A documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

[2] Available only in NEs with firmware versions 3812 and above.

Events

Events have default severity levels assigned to them, and the severity level of certain events can be modified in this action panel. This action panel is also used to determine which events are recorded in the NE's event log. Figure K-5 shows the layout of the action panel for Events. Table K-5 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the TimeProvider documentation where more detailed information can be found.
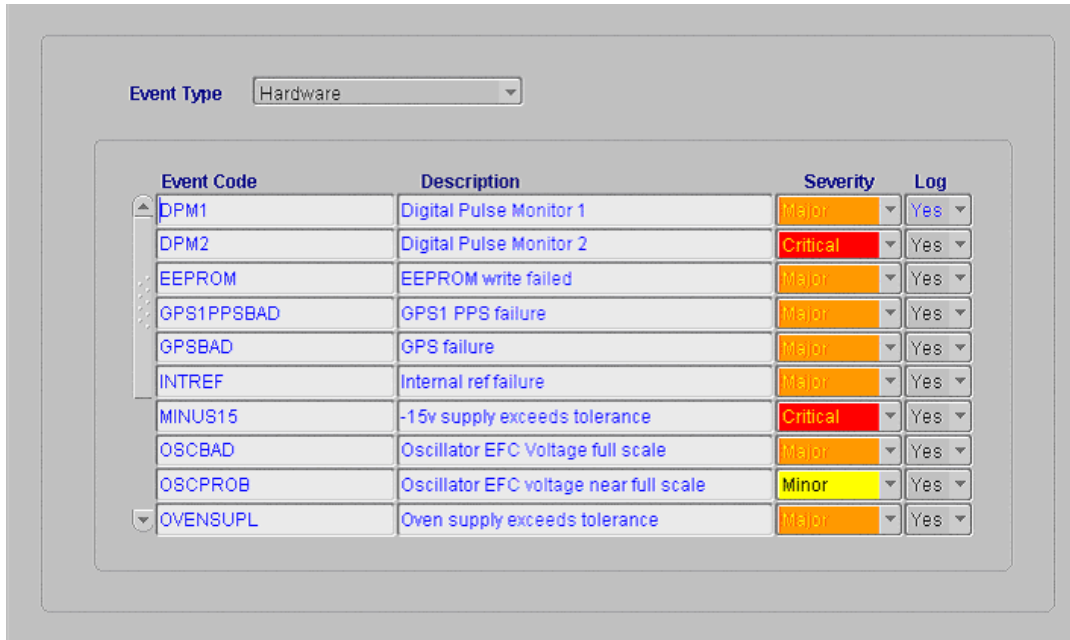
Figure K-5.   Action Panel - Events

Table K-5. Events

Setting/Button	Description	COMMAND/KEYWORD[1]
Event Type Specifier		
Event Type	Specifies the category of events to be included in the lower portion of the action panel.	None.
Event-Specific Settings		
Description	The description in this column describes the event condition to which the other settings apply.	None.
Event Code	The code in this column indicates the event condition to which the other settings apply.	None.

Table K-5. Events (Continued)

Setting/Button	Description	COMMAND/KEYWORD[1]
Log	Determines whether or not the event will be recorded in the event log when it occurs.	ED-EQPT (command)
Severity	The severity of the alarm or event indicated in the row.	ED-EQPT (command)

Note:

[1] Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55300A documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Communications

There are several LOCAL (Port 1), REMOTE (Remote Access Port), and TOD (Time of Day) communication port settings that are configurable in this action panel. Figure K-6 shows the layout of the action panel for Communications. Table K-6 gives a brief description of each setting. The COMMAND/KEYWORD column in the table provides a reference point in the 55300A documentation where more detailed information can be found.

Figure K-6.   Action Panel - Communications

Table K-6. Communications

Setting/Button	Description	COMMAND/KEYWORD[1]
Automatic	Determines when automatic messages are reported on the port named in the first column of the row.	LCLAO (keyword) RMTAO (keyword)
Baud	The baud rate of the port named in the first column of the row.	LCLBAUD (keyword) RMTBAUD (keyword) TODBAUD (keyword)
Data Bits	The number of communication bits used by the port named in the first column of the row.	LCLBITS (keyword) RMTBITS (keyword) TODBITS (keyword)
Echo	Determines if commands are echoed to the terminal connected to the port named in the first column of the row.	LCLECHO (keyword) RMTECHO (keyword) TODECHO (keyword)
Flow	Determines if hardware flow control is used on the port named in the first column of the row.	LCLFLOW (keyword) RMTFLOW (keyword) TODFLOW (keyword)
Pace	Determines the communication port pace for the port named in the first column of the row.	LCLPACE (keyword) RMTPACE (keyword) TODPACE (keyword)
Parity	Determines if even, odd, or no parity is used on the port named in the first column of the row.	LCLPARITY (keyword) RMTPARITY (keyword) TODPARITY (keyword)
Ports	The port-specific parameters in the row apply to the communication port named in this column.	None
Stop Bits	The number of stop bits used by the port named in the first column of the row.	LCLSBITS (keyword) RMTSBITS (keyword) TODSBITS (keyword)

Note:

[1] Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55300A documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Commands

This action panel contains buttons that perform several useful NE functions. Figure K-7 shows the layout of the action panel for Commands. Table K-7 gives a brief description of each button. The COMMAND/KEYWORD column in the table provides a reference point in the 55300A documentation where more detailed information can be found.
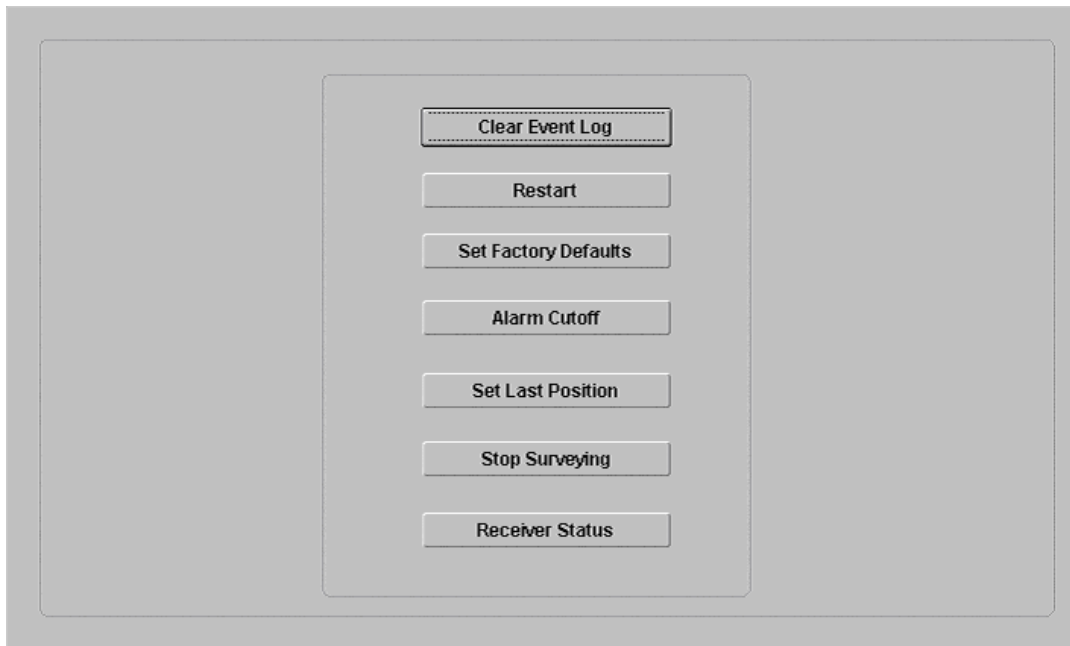
Figure K-7.   Action Panel - Commands

Table K-7. Commands

Button	Description	COMMAND/KEYWORD[1]
Alarm Cutoff	Enables the alarm cutoff function.	OPR-ACO-ALL (command)
Clear Event Log	Clears the event log.	INIT-LOG (command)
Receiver Status	Displays the receiver status in a dialog box that is similar to the dialog box shown in Figure K-2 in this chapter.	SYSTSTAT (keyword)
Restart	Causes the NE to emulate a power-on sequence without resetting all parameters to factory default values.	INIT-SYS (command)

Table K-7. Commands (Continued)

Button	Description	COMMAND/KEYWORD[1]
Set Factory Defaults	Causes the NE to reset all parameters to factory default values and then emulate a power-on sequence.	INIT-SYS (command)
Set Last Position	Sets the position of the NE to the last position specified.	POS (keyword)
Stop Surveying	Directs the NE to stop surveying and use the computed position.	POS (keyword)

Note:

[1] Commands or keywords are provided in this column as a means of cross-referencing to more detailed information in the 55300A documentation. Please note that the information in this column is not intended to be full TL/1command syntax for the features.

Appendix L General Constraints, Issues, and Enhancements

This chapter provides information regarding general constraints, known issues, resolved issues, and other enhancements in TimePictra.

In This Appendix

- Resolved Issues and Enhancements
- General Constraints for TimePictra
- Known Issues

Resolved Issues and Enhancements

The following section lists issues that have been resolved as well as enhancements that have been made to TimePictra. Each item is preceded by the line "*(Fixed in TimePictra X.X)*" or "*(Enhancement in TimePictra X.X)*" where *X.X* is the software release in which the issue was resolved:

1. *(Fixed in TimePictra 3.1)* A re-manage operation would clear all user entered inputs, such as inventory and remarks, for the NE.

2. *(Fixed in TimePictra 3.1)* DCD status forms does not include any indication about protection status.

3. *(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.

4. *(Fixed in TimePictra 3.2)* TP documentation refers to DCD 5.04.04, but this version was not released when 3.0 was released.

5. *(Fixed in TimePictra 3.2)* Alarm Viewer auto-refresh is set to off by default. Have it set to 20 seconds by default

6. *(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=55482, Model no: 2=).

7. *(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.

8. *(Fixed in TimePictra 3.2)* Performance Table size increase to handle larger amount of data.

9. *(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.

10. *(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.

11. *(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)*

12. *(Fixed in TimePictra 3.2)* Activity Log viewable by "User" level security. Access removed.

13. *(Fixed in TimePictra 3.2)* Maximum length FDN and Refresh causes crash on the Web session.

14. *(Fixed in TimePictra 3.2)* User which has "Root" domain as their filter do not see NEs in other domains.

15. *(Fixed in TimePictra 3.2)* Alarm Viewer filter for 55409 NE types does not have event types associated.

16. *(Fixed in TimePictra 3.4)* Alarms generated by the SSU-2000 do not change the severity of domains correctly.

17. *(Fixed in TimePictra 3.4)* Configuration alignment causes TimeHub, SSU-2000 and TimeProvider Configuration View/Modify forms to not work because it clears the AID setting.

18. *(Fixed in TimePictra 3.4)* Management domains could be deleted with sub-domains under them.

19. *(Fixed in TimePictra 3.4)* When Auto-Refresh is enabled on the Launch Pad, the automatic refresh changes the background highlight color of the selected network element to match with the severity of the last network element in the list.

20. *(Fixed in TimePictra 3.4)* The 55400 Configuration View/Modify form sends the incorrect AID with TL1 commands.

21. *(Fixed in TimePictra 3.4)* When a 55409 NE is managed, changes made in the Configuration View/Modify form generate invalid netype errors.

22. *(Fixed in TimePictra 3.4)* Creating MIS-23 netypes prevents OpenView sessions from starting.

23. *(Fixed in TimePictra 3.4)* When a 5.05.02 DCD is managed with expansion shelves, the user is not able to configure output ports on the output cards in the expansion racks via the Configuration View/Modify form.

24. *(Fixed in TimePictra 3.4) The* SSU-2000 "Revert" button in the Configuration View/Modify form is not working properly on the NE panel.

25. *(Fixed in TimePictra 3.4)* When a card is removed from an NE but the data is still in the database with the "Removed" field set to "Y', then Config Defaults reports incorrect changes vs. the NE.

26. *(Fixed in TimePictra 3.4)* Config Defaults does not detect changes because like the SSU-2000, TSG-3800, the same AID for NEs could have different type of cards, get errors while comparing these card and the error is not reported.

27. *(Fixed in TimePictra 3.4)* Oracle patch set 9.2.0.5.0 needs to be installed to fix the problem of Long TL1 responses causing manage operations to fail in Oracle 9.2.

28. *(Fixed in TimePictra 3.4)* TimeHub user form: password is forced to be uppercase.

29. *(Fixed in TimePictra 3.4)* Wrong power A/B, alarm LEDs on IMC card of the TimeHub status panel.

30. *(Fixed in TimePictra 3.4)* Transaction Log form allows users to view NEs not in their management domain.

31. *(Fixed in TimePictra 3.4)* Fix typing error in SSU-2000 MTIE mask data.

32. *(Enhancement in TimePictra 3.4)* In a lot of customer situations, firewall settings and slow connections would cause the Launch Pad to loose it's connection to the Oracle Forms server. The static_jinit.html file was modified with default values for heartbeat at three minutes and up to ten reconnect tries before the Launch Pad will give up and need to be re-launched.

33. *(Enhancement in TimePictra 3.4)* A script has been included to enable and disable the filtering of copious amounts of MISMATCH events that come from DCDs with a known firmware issue.

34. *(Enhancement in TimePictra 3.4)* An unsupported utility has been created to send out TL1 commands or update NE login user/passwords to multiple NEs.

35. *(Enhancement in TimePictra 3.4)* Domains are sorted in alphabetical order on the Launch Pad.

36. *(Enhancement in TimePictra 3.4) The* Launch Pad will remember the last selected NE when refreshed.

37. *(Fixed in TimePictra 3.5)* In Performance Monitor for TimeHub, after selecting SPRD as the measurement type, then clicking Apply, a message box comes up with no error message in it. After acknowledging the message box, the mouse stays in an hourglass shape indefinitely. You can click close even though the mouse is in an hourglass shape, and the mouse will stay that way until it's refreshed somehow.

38. *(Fixed in TimePictra 3.5)* Filter (both the dynamic and saved filters) issues (especially for non SEC users) fixed for both 'Alarm Viewer' and 'Event History Log' windows.

39. *(Fixed in TimePictra 3.5)* Sometimes in OpenView when a sub-domain was added via the launch pad, it would not show on the OpenView interface.

40. *(Fixed in TimePictra 3.5)* For TSG3800E, added firmware version to inventories and show the same firmware version on configuration form.

41. *(Fixed in TimePictra 3.5)* At times, after opening the sort form, the 55400 Inventory form would resize itself to be too small. Please see the screenshot.

42. *(Fixed in TimePictra 3.5)* Previously a user was allowed to do a 'Forced Alarm Sync' on 'Un-Managed' or 'Un-Available' network elements. Now it is allowed only if the NE is available, as that is the time it makes more sense.

43. *(Fixed in TimePictra 3.5)* Few issues fixed in TimeProvider User Admin form.

44. *(Fixed in TimePictra 3.5)* Few LEDs issues fixed in 'TimeHub Status Panel' form.

45. *(Fixed in TimePictra 3.5)* In 'swremove' (while un-installing TimePictra), it would wrongly show that Oracle is still running. That is now fixed.

46. *(Fixed in TimePictra 3.5)* Alarm Viewer window shows a summary count at the top. Unacknowledged Non Alarm events were not being counted towards the 'others' total. This is fixed now.

47. *(Enhancement in TimePictra 3.5)* the NE Port information is now shown in the main Launch-Pad interface itself. No need to right scroll to see NE address and port information together.

48. *(Enhancement in TimePictra 3.5)* the NE Remarks are now shown in the main list of the Launch Pad interface. Now its much easier and quicker to see remarks of multiple NEs at the same time without selecting the menu item 'File'->'NE Details', which would show remarks one at a time.

49. *(Enhancement in TimePictra 3.5)* The Transaction Log has many more enhancements to log transactions when users login or logout, when NE/Domain is created or deleted, and when a TimePictra user is created/deleted, etc.

50. *(Enhancement in TimePictra 3.5)* In the Pass-Thru window, it is quicker to send the TL1 command you type. Now just pressing Enter sends the command. This saves you extra mouse movement and mouse click (on 'Send' button) to do the same thing.

51. *(Enhancement in TimePictra 3.5)* NE Search capability (through menu 'View'->'Search') made better and more effective.

52. *(Enhancement in TimePictra 3.5)* NE Remarks width increased from 80 to 500 characters, allowing you to enter many more lines and thus much more status and information for a particular NE. Also, the NE Remarks GUI window was made better and larger.

53. *(Enhancement in TimePictra 3.5)* For DCD EA-20 cards, previously it was fixed 10, but now we show all the 20 ports in 'Add Port' or 'Delete Port' windows.

54.   *(Enhancement in TimePictra 3.5)* Associated Clear-Event-Time (in the 'Event Details' window) now has the clear time that comes from the NE. Previously it was the TimePictra Server time. This was causing lot of confusion, when TimePictra and NE did not have the same time. Now if the TimePictra and NE are not on the same time, it would not be confusing to see dates and times in 'Event Details' window.

55.   *(Enhancement in TimePictra 3.5)* Support for SSU2000 LRU E1 Cards.

56.   *(Enhancement in TimePictra 3.5)* Support to plot TDEV/MTIE Graphs for TimeProvider firmware 1.02.12 (also know as 2.1)

57.   (*Fixed in TimePictra 3.6*) SSMs for the 55400 do not appear in the audit. The SSMs are now displayed on the 55400 Status Panel.

58.   (*Fixed in TimePictra 3.6*) Performance Reports now include Measurement Interval Types.

59.   (*Fixed in TimePictra 3.6*) For the 55300, when security is enabled, the connection may be lost. The heartbeat command is now Act-User instead of Rtrv-Hdr.

60.   (*Fixed in TimePictra 3.6*) The Performance Monitor addition now works with the 55400 when security is enabled.

61.   (*Fixed in TimePictra 3.6*) Autonomous alarms received in the activity log are now passed to the alarm list.

62.   (*Fixed in TimePictra 3.6*) The Top 15 alarm option now works for all users, including the sec user.

63.   (*Fixed in TimePictra 3.6*) The alarms from the 55300 now clear on TimePictra.

64.   (*Fixed in TimePictra 3.6*) The alarm list now shows M for Mapped only when Mapping is present.

65.   (*Fixed in TimePictra 3.6*) Unix Security-level users can now change the password of subordinate users.

66.   (*Fixed in TimePictra 3.6*) On an upgraded system, managing an NE no longer fails.

67.   (*Enhancement in TimePictra 3.6*) Changes on redundant output cards are updated in TimePictra.

68.   (*Enhancement in TimePictra 3.6*) A popup window appears requesting confirmation of alarm discharge.

69.   (*Enhancement in TimePictra 3.6*) A user profile is added.

70. (*Enhancement in TimePictra 3.6*) In the Performance Monitor, a log scale is available, NA data is shown as a gap in graphics, positive and negative values are displayed in bar graphs up and down the x-axis.

71. (*Enhancement in TimePictra 3.6*) For the TimeProvider NE: full management on version 2.1 (GPS, performance, Japanese-specification signals); full management on version 2.2 (Retimer, port name); firmware download feature.

72. (*Enhancement in TimePictra 3.6*) The Retimer function is now supported on the TimeSource 3100 and TimeSource 3600 NEs.

73. (*Enhancement in TimePictra 3.6*) The Reset function is now supported on the SSU-2000 and TimeProvider NEs.

74. (*Enhancement in TimePictra 3.6*) Only the last 10 heartbeat commands and responses are maintained in the activity log, reducing the chance that the raw_log table fills too quickly when many NEs are being managed.

75. (*Enhancement in TimePictra 3.6*) The SSM, BPV, and CRC values are shown on the Status Panel for the 55400 NE.

76. (*Enhancement in TimePictra 3.6*) The new firmware for the E1/2048 kHz Output module in the SSU-2000 NE is supported.

77. (*Enhancement in TimePictra 3.6*) The Alarm and Event data can be exported as a tab-separated value (TSV) file.

78. (*Enhancement in TimePictra 3.6*) The selection name can be a sort value in the Inventory form.

79. (*Enhancement in TimePictra 3.6.1*) Added support for TimeProvider 3.0 functions.

80. (*Enhancement in TimePictra 3.6.1*) Added support for provisioninig the SSU-2000 Japanese input and output modules.

81. (*Enhancement in TimePictra 3.6.1*) Added support for TimeSource 1.06.09, 1.06.10 and 1.06.11.

82. (*Enhancement in TimePictra 3.6.1*) Changed expansion shelves naming in SSU-2000.

83. (*Enhancement in TimePictra 3.6.1*) Added navigation arrows in DCD NE status.

84. (*Enhancement in TimePictra 3.6.1*) Separated SSU-2000 GPS options from other input cards in Configuration form.

85. (*Enhancement in TimePictra 3.6.1*) In TimeProvider configuration form, show date and time are blank but the setting feature is still available.

86. (*Fixed in TimePictra 3.6.1*) Corrected issues in TimeSource status panel LED.

87. (*Fixed in TimePictra 3.6.1*) Corrected issue caused when trying to display DCD 5.05.02 expansion shelves.

88. (*Fixed in TimePictra 3.6.1*) Corrected issue for SSU-2000 NE Status auto-refresh functionality.

89. (*Fixed in TimePictra 3.6.1*) Corrected issue caused when managing five full SSU-2000 shelves.

General Constraints for TimePictra

Limits for specified fields and capabilities

Number of managed Network Elements, 1500

Number of domains, 200

Maximum 500 NEs per domain

TimePictra supports a maximum total of an average of 200 (150 non-alarmed, 50 alarmed) events per NE per day. TimePictra does not support unlimited auto-upload of auto performance events (such events count towards non alarmed event total of 150).

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 deep, 5 (including the "root" domain)

Length of Network Element name, 25

Length of TimePictra Username, 7

Length of TimePictra 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 operations 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.

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 the 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 1.3.1.22. 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

The following sections list current as well as past known issues that are related to TimePictra, and current known issues that are related to Oracle.

TimePictra Issues

The following known issues are related to TimePictra.

1. A Manage operation might fail for NE if simultaneously a user from another session tries to work on it.

2. On the 55400, 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. Also, in the 55400 status panel, the 'Alarm Cut Of button' works fine (you can check 'Activity Log' to see that it was successful), but it may show a harmless error message.

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. SYS LED for TS3xxx on status panel is not implemented to check if the PRC was lost for more than 24 hours.

5. 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.

6. When using firmware download form, the form requires the download file to be in /var/opt/osmf/share/log directory.

> **Note:** This issue does not apply for SSU-2000 firmware downloads.

7. E1 performance mask values are not available for reference in performance plots.

8. 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.

9. 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.

10. If, after logging in to TimePictra, the Launch Pad appears containing a dummy entry ("Dummy" appears in the Address field), the Oracle Web Server has become corrupted. To fix the problem, re-install and re-configure the Oracle Web Server following the applicable instructions in the *TimePictra Release 3.5 Administrator's Guide*. In some cases, you might also have to download and install Oracle Patch 15 to fully remedy the problem. Oracle Patch 15 is available from the Oracle web site. Installation instructions are included with the patch.

11. When a card of a given type is removed from a slot in an NE, and a card of a different type is inserted into the same slot, subsequent network element management operations will fail. As a workaround, if cards of different types are swapped out of the same slot in an NE, delete the NE, re-add it, and then re-manage it in TimePictra.

12. Version D of the PRR10 has not been tested with TimePictra 3.4, and Version E of the PRR10 is not supported.

13. DCD version 5.01.05 has not been tested with TimePictra 3.4.

14. In the Difference Log that appears after a 55300 configuration compare operation, invalid differences might be listed in the Template Value and NE Value columns for the GPS NETYPE attribute (both values will be shown as "Hewlett-Packard Company: 55300A"). The comparison is accurate for all other attribute values.

15. NE User Administration is not implemented in the 55300 NE.

    Workaround: Use a local craft interface or the TimePictra Pass-Through Interface to create users on the NE.

16. The DCD's NE Status panel does not show non-standard inventory, even if non-standard inventory information has been entered manually into the MIS card.

17. The Date and Time fields on the GPS Info tab in the 55300A View Configuration and Modify Configuration forms might display inaccurate values, because they show the date and time on the NE when it was managed, rather than the actual values.

    Workaround: Re-manage the NE to see the latest date and time values.

18.	Thirty seconds elapse when an NE that is "un-available" on the LAN is unmanaged.

	This occurs because for such un-available NEs, TimePictra performs regular interval checks to see if the any of the NEs are "available now". It takes TimePictra thirty seconds to come out of that check and ignore the NE.

19.	The DCD status panels reflect ST-3e cards by default. Other cards are not properly reflected.

20.	DCD 5.04.02 configuration compare and configuration audit operations might report incorrect differences for some attributes.

21.	In the TimeHub View Configuration and Modify Configuration forms, most of the events are listed under the Event tab, however, a few of the more recent events are missing from the list.

22.	Performance events are not shown in the Event History Log.

23.	If a severity or AID is not reported by an NE, and the user selects such a severity or AID, then Auto-Action will not work.

24.	Clicking the Refresh button on the Alarm Viewer refreshes the form with information that is relevant to the NE currently in the "saved" filter. Only one "saved" filter exists, and it pertains to the last form that was invoked.

	If an Alarm Viewer form is invoked for one NE, then another Alarm Viewer form is invoked for another NE, the Alarm Viewer for the first NE will clear when its Refresh button is clicked, because the "saved" filter now pertains to the second NE because its Alarm Viewer was invoked last.

	Workaround: To see events related to the first NE when you click the Refresh button, the change the filter settings to specifically select the NE.

25.	The Launch Pad sometimes does not scroll down the entire domain list.

	Workaround: Collapse and then expand the last domain in the domain list.

26.	If the TID of TSG-3800 Version D is updated using the TimePictra Pass-Through Interface, direct telnet, or local craft interface, then TimePictra commands sent to the TSG-3800 will fail.

	Workaround: Changing the TID of TSG-3800 Version D using the TimePictra Pass-Through Interface, direct telnet, or local craft interface is not recommended. If the TID is changed using one of these methods and TimePictra commands no longer execute, delete and then re-create the NE.

27.	After modifying the password and then applying the change in the DCD 5.04.02 NE User Administration form, the user name disappears from the User Name: field.

Workaround: Select another user in the Users list, then select the original user.

28. Max extents errors occur when a large network is managed. This can occur either because the mv_status_notifications or ot_raw_log table has become too large.

Workarounds: Should max extents errors occur, the workaround depends on the table that is causing the problem:

– *If the mv_status_notifications table is causing the problem,* truncate the table using the following SQL command:

```
truncate table mv_status_notifications;
```

– *If the ot_raw_log table is causing the problem,* contact Symmetricom support to obtain the change_data_cleanup.ks script. This script reduces the number of days that data is stored in the Activity Log.

29. Occasionally the mouse selection (to select an item from list) stops working. These lists could be the NE list in Launch Pad window, the Alarm/Event list in Alarm-Viewer/Event-History-Log window, TL1 commands/responses/events list in the Activity-Log window, etc. Between different versions of Oracle JInitiator, this problem has a different frequency of occurrence. It is mainly an Oracle platform issue.

Workarounds: Logout and restart session. Quite often the arrows keys and keyboard keeps working, so you can use the keyboard and arrow keys when mouse selection is not working.

30. For the SSU2000, in the Alarm-Viewer/Event-History-Log windows the condtype (i.e. alarm/event name) sort does not look logical. This is because the Oracle sort is alphabetic, not numeric and in the SSU2000, condtypes (i.e. alarm/event names) are only numbers instead of more explanatory alphabetic names. No problem for any other NE types.

31. In the 'Alarms-Details' window, event allows remarks to be entered beyond 100 characters, but all characters beyond 100 characters are not saved. So limit your remarks there to 100 characters only.

32. For TSG3800 Status panel, some of the LEDs do not represent the right physical state.

33. After running a database 'Recovery', the osmfstatus script may show all of the SE processes to be up while SEMD was down. This happens because at the time of taking hot 'Online Backup', these SE processes were up and that state was maintained in the database.

Workaround: There are no side effects; re-start TimePictra after a database recovery.

34. Configuration Defaults/Audit features may show unexpected differences or may not work properly in an upgrade situation.

Workaround: Re-create the Defaults and Re-Manage the NE. In some situations you may need to Un-Manage, Delete, Re-Create and Manage the NE.

35. It is strongly advisable to Turn Auto Refresh off while doing intensive operations like Manage, Audit, etc. If you do not, you may loose selection with your mouse, at times your session may also hang and other odd GUI behavior can occur. Nothing serious happens; it is just a nuisance.

Workaround: In the worst case, re-start your browser and session. You can turn Auto Refresh back on once the operations are over.

36. If the "Change Password on Initial Login" box is checked in the default user profile and a new user is created, then the "Change Password..." box is unchecked, the new user must still change their password on the initial login. This option is implemented when a new user is created.

37. The user profile only works for sessions accessed via the web.

38. A login/logout event is entered in the transaction log only for web users. The Show User feature only shows active web users.

39. If an OV user is deleted while connected, then the user's OV session may become disordered.

40. If user's password is modified while that user is running TimePictra, then Oracle errors may occur when the user opens a new form. After several Oracle errors, the user may become locked out, depending on the user's profile.

Workaround: If this occurs, the user should close TimePictra and log back in using the new password.

41. Set NE time when manage NE is not available for the TimeProvider NE. The user can set the NE time using the TimeProvider Configuration form.

42. If a user is using the replication option, the current password expire date, the password reuse max, and the password reuse day parameters on the primary are reset on the secondary (status is the same as creating a new user) if the user relocates the database to bring up the secondary as product server. If the account is locked on the primary, then it may not be able to unlock itself; ask an administrator to unlock the account on the secondary.

43. The SSU-2000 status panel illustrates only the domestic version of the shelf; this shelf has 16 slots. If you connect TimePictra to an SSU-2000e shelf, which has 12 slots, the extra four slots still appear in the status panel. The titles for slot 11 and 12 are not correct for the SSU-2000e; the title should read Buffer card.

44. For the SSU-2000 Status panel, some of the LEDs may not represent the right physical state

Oracle Issues

The following known issues are related to Oracle:

1. When the mouse is configured for left-handed operation, clicking the left and right mouse buttons invokes only the sub-menu when selecting domains in the TimePictra Launch Pad; Domains are not selectable. This issue is not observed when the mouse is configured for right-handed operation.

2. When User logs out or connectivity is broken between a Launch Pad session and the 'TimePictra Forms Application Server', the JInitiator window (typically a small window) stays open and has to be closed separately.

Note: Do not close this window before you logout, i.e. while your Client TimePictra Web session is active, otherwise your active TimePictra session will be abruptly closed.

Index

Numerics

A

B

C