



TimePictra

Release 3.2

Administrator's Guide

097-48301-32

Issue 1

June 2003

Symmetricom, Inc.
2300 Orchard Parkway
San Jose, CA 95131-1017
U.S.A.

<http://www.symmetricom.com>

Copyright © 2003 Symmetricom, Inc.
All rights reserved. Printed in U.S.A.

All product names, service marks, trademarks, and registered trademarks
used in this document are the property of their respective owners.

Chapter 1 Introduction and General Information

In This Guide	8
Naming Conventions	8
Software Description	9
TimePictra Features	9
General Constraints and Known Issues Addressed in Version 3.2	12
Options	13
Synchronization Planning Tool	14
System Overview	14
Event Handling	15
Transaction Handling	17
Web Subsystem	18
Heartbeat and Alarm Synchronization Processes	21
System Requirements	22
Prerequisites	22
TimePictra Web Client System Requirements (Windows NT/98/2000/XP Clients)	23
TimePictra On-Line Help	23
Responsibilities of the System Administrator	24
Prerequisite Knowledge	24
Related Documentation	24
The Administration Utility	24

Chapter 2 Starting and Stopping TimePictra

Start a Software Session	28
Stop a Software Session	34

Chapter 3 Routine System Administration

Check the Health of the System (osmfssystem)	38
Automatic Script Execution	38
Manual Script Execution	39
Check Status of TimePictra Processes (osmfstatus)	41
Archive Performance History Data and Events	45

Clean Up Temporary Files	48
------------------------------------	----

Chapter 4 System Backup and Recovery

System Backup	50
Backup Categories	50
Backup Requirements	51
Backup Procedures	52
HP-UX Core System Backup	52
System Backup	54
TimePictra Database Backup	56
System Recovery	58
Complete System Recovery	58
Using SAM for Recovery	60
Restoring the TimePictra Database from Tape or Filesystem	61
Example "otdbrecover.ks -recover" Output	65

Chapter 5 Installation

Overview	70
Initial Installation	71
Prerequisites	71
Installing HP-UX 11i	71
Installing June 2002 11i Quality Pack	73
UNIX Kernel Configuration	74
Installing Java SDK 1.2.2.13	76
Installing Oracle 9i Server	77
Installing Oracle 9i Application Server	80
Installing Network Node Manager	81
Installing TimePictra	82
TimePictra Database Creation	83
Configuring Web Services	84
Installing Oracle 9iAS/6iserver Patch 9	85
Create and Configure TimePictra User	86
Verify the Installation	89

Upgrading TimePictra	91
Removing TimePictra	92
Uninstalling TimePictra	92

Chapter 6 Commissioning an NE

Configure NEs to Communicate with TimePictra	96
--	----

This page intentionally left blank.

Introduction and General Information

This chapter describes the software and provides an overview of the system configuration and system requirements.

In This Guide

1

The TimePictra Administrator's Guide provides information necessary to manage and maintain the TimePictra hardware and software. It makes the assumption you have experience with the HP-UX operating system, Oracle database administration, Oracle 9, and Oracle 9 Application Server.

This guide includes the following topics:

- Features supported in the current version of the software as well as a modular description of the software
- System requirements
- Basic system administration tasks, such as starting and stopping the software, and routine system administration
- System backup and recovery
- Installation of the software and software upgrades

Naming Conventions

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

Table A. Object Naming Conventions

Object	Names Used for the Object
TimePictra software	TimePictra application, TimePictra, software
HP-UX workstation	TimePictra workstation, TimePictra system, host system, element manager
Timing Signal Generator	TSG, SSU, NSU, BITS, NE, network element, network object
Primary Reference Source	PRS, PRC, GPS, NE, network element, network object
HP-UX 11: Minimal Technical Operating Environment	HP-UX, 11, MTOE, Unix

Software Description

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

TimePictra Features

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

Features - Pre-Version 3.1 Release of TimePictra

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

- Support for the following NE types:
 - TimeHub 5500
 - Net Sync 55400/55409
 - Net Sync 55300 (fault management)
 - TimeSource 3000 (v1.04.02)
 - TimeSource 3100 (v1.04.03)
 - TimeSource 3500 (v1.04.02)
 - TimeSource 3600 (v1.04.02)
 - DCD 5.01.05
 - DCD 5.04.02
 - DCD 5.05.02
 - DCD 5.05.04
 - TSG 3800 Datum (vD.04)
 - TSG 3800 Datum (vE TL1 ver G)
 - PRR10 Datum (vD)
 - SSU-2000 Datum (fault management)

- Ability to manage synchronization network consisting of up to 1500 Network Elements (NEs).
- Ability to communicate with NEs over the network using the TCP/IP, X.25, and TP4 communications protocols.
- Adherence to TNM standards
- Integration with industry standards: Oracle, HP Openview.
- Single screen graphical representation of the synchronization network topology using HP Openview Network Node Manager. Color status indicates the severity of alarms originating at nodes within the network.
- Web-based graphical user interface that can be viewed on supported platforms capable of browser based connections to the world-wide-web, with color status indicating the severity of alarms originating at nodes with the network. Web presentation is via a combination of HTML pages and Java applets. The main Web-based screen is referred to as the Launch Pad, and it is from the Launch Pad that other management activities are launched during Web sessions.
- TimePictra status propagation rules to indicate changes in status of network elements at the lower levels of the containment hierarchy. Status propagation is visible in the Openview map as well as the Launch Pad.
- Synchronization trails to allow assignment of input to output connectivity between NEs. Visual representation of sync trails is viewable via a form, and on Openview Maps directly.
- Network Element Status display, which can be used to remotely view the status of selected panel indicators from a specified NE.
- An Alarm Viewer and Event History Log, which provide sorting and filtering capability for effective ordering and displaying of current alarms and other events. Alarm and event details are available along with the ability to acknowledge and discharge current alarms.
- Fault analysis, which provides the functionality to analyze the number and type of alarms and events generated by selected NEs over a given period of time.
- Forced alarm synchronization, in which the user can selectively force the system to compare a list of active alarms from a selected NE to the alarms that are stored in the TimePictra database for that NE. The system then transfers any alarms that are in the TimePictra database but no longer active in the NE from the Alarm Viewer to the Event Log.
- Alarm auto-synchronization daemon that ensures alarms on management system, match the current alarms on the NE.
- Heartbeat task, which provides automatic, periodic checking of connectivity of the host system to all managed NEs.

- Performance Monitoring, which collects and displays performance measurement data for a variety of NE input channel measurements in either line, column, or tabular format. The performance monitor allows the display of some measurements against a selection of performance masks, as well as against previously recorded measurement data. (performance history data)
- Inventory management, which allows for the tracking of all installed hardware down to the component level. Much of the hardware is auto-discovered when the NE is first managed by the system.
- Ability to view and modify the configuration of any NE that is actively being managed by the system.
- Three different levels of user access determine the level and capability each user will be granted. Management domains add additional security while also providing organizational views for the NEs.
- Ability to download firmware code from TimePictra system to the EPROMs on the targeted NE.
- User administration of NE users as well as TimePictra users.
- Pass-through communication via TL1 commands. The pass-through screen includes command history and command prototyping capability.
- Print and report generation of alarms, events, performance data, and activity logs.
- Default templates, which may be used to compare database values against template values. Templates may be added and removed from the database.
- Direct audit of NEs to compare database values against NE values.
- Command bundles, which may be used to batch download commands to specified NEs.
- Auto Action, which allows system interaction with other applications and the end user. This powerful tool may be used to execute any command or utility when triggered by alarms or events received from any NE.
- An Activity log, which shows all activity between TimePictra and each NE.
- A Transaction log, which shows actions taken by each TimePictra user on each NE.
- Administration utilities which provide ease of use for the administration of the TimePictra platform.

Features and Enhancements - Version 3.1

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

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

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

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

Features and Enhancements - Version 3.2

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

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

General Constraints and Known Issues Addressed in Version 3.2

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

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

- Known Issue #70 - TP documentation refers to DCD 5.04.04, but this version was not released when 3.0 was released.
- Known Issue #107 - Alarm Viewer auto-refresh is set to off by default. Have it set to 20 seconds by default

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

Options

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

SNMP Agent Interface

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

Resiliency

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

Performance Analyzer

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

Synchronization Planning Tool

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

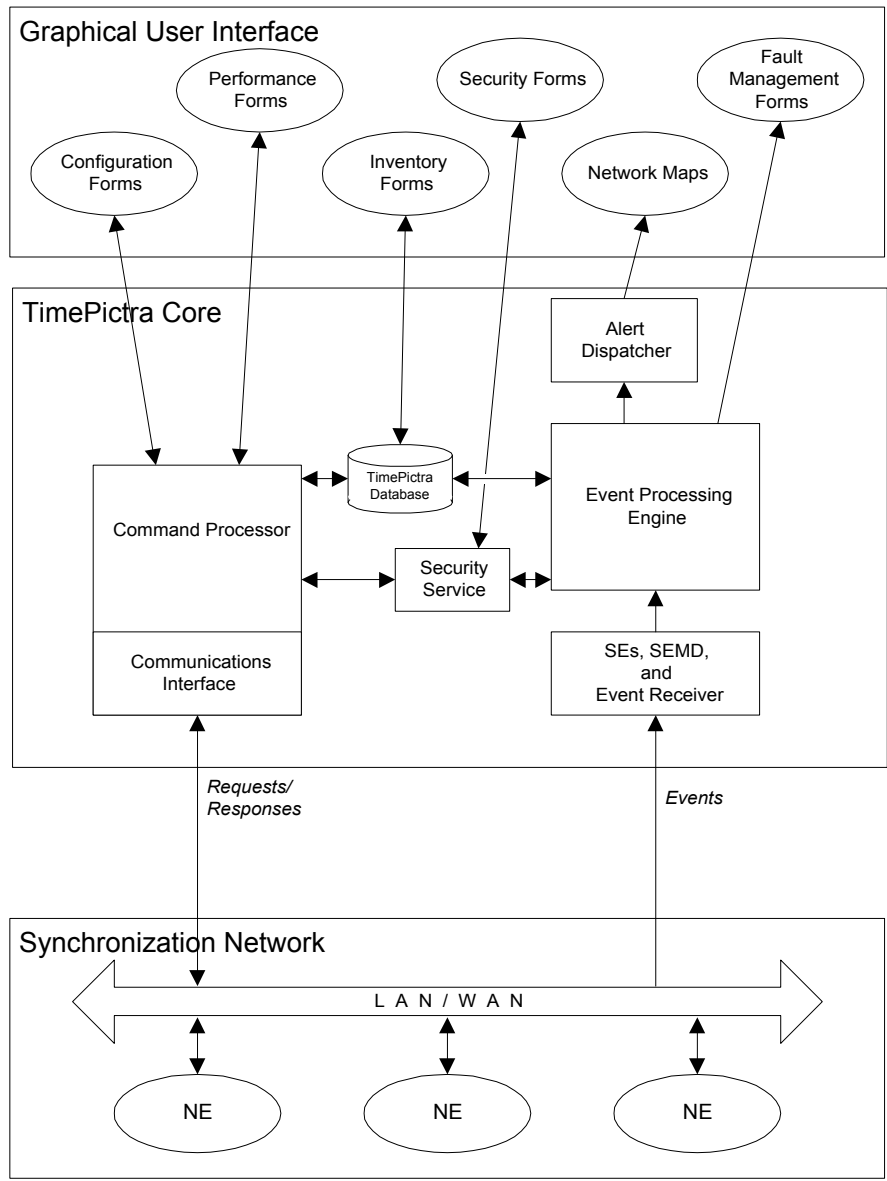
System Overview

The TimePictra software is integrated with the Network Node Manager platform and Web-based forms. The graphical user interface is consistent when presented either via OpenView or the Web. Use of OpenView adds the ability to view the network topology on a map. The system presents a graphical representation of the network synchronization topology and allows for management and monitoring of Network Elements (NEs).

The software can be thought of as having two main duties: transaction handling and event handling. Transaction handling involves the processing of command transactions (request-and-response actions) between the TimePictra application and the NEs in the synchronization network. Event handling involves the processing of alarms and other events from the NEs.

The software blocks are shown in Figure 1, and briefly described in the following paragraphs.

Figure 1. TimePictra Software Block Diagram



Note: The software modules described below do not necessarily represent actual software processes.

Event Handling

The software modules involved in Event Handling include the Event Receiver, Event Processing Engine, Alert Dispatcher, Fault Management Forms, and Network Map. The function of each of these modules is described in the following paragraphs.

Service Elements, SEMD, and Event Receiver

Service Elements (SEs) handle communication links between the software and the NEs in the network. SEs are created and deleted on an as-needed basis as NEs are managed and unmanaged. SEs also update the database regarding NE state changes, and handle response timeouts. SEs can handle communication links for approximately 50 NEs each and are created dynamically as needed

The *Service Element Management Daemon (SEMD)* is launched when the software is started. The SEMD is responsible for dynamically creating SEs as NEs are managed. Once an SE is created, the SEMD is responsible for monitoring the health of the SE, and notifying the SE when the database has a command to send to a NE under its control. When NEs are unmanaged, the SEMD is responsible for deleting SEs that no longer maintain links to any managed NEs.

The *Event Receiver* receives events from the managed NEs in the synchronization network and forwards valid events to the Event Processing Engine.

Event Processing Engine

The Event Processing Engine receives events from the Event Receiver and determines their status and type. Depending on the status and type of an event, the Event Processing Engine logs the event into the appropriate event database table and if necessary sends an alert message to the Alert Dispatcher (alert messages result from events that signal a change of status in NEs).

Alert Dispatcher

The Alert Dispatcher receives alert messages from the Event Processing Engine. It then sends messages as appropriate to the Network Maps in each registered session of software.

Network Maps

These are graphical representations of the synchronization network. Network Maps are created using the software and are comprised of either actively managed or unmanaged NE icons or domains containing groups of NEs and other domains.

Fault Management Forms

These are the user interfaces to the fault management functions of the software. The fault management forms are the Network Element Status, Alarm Viewer, Event History Log, and Fault Analysis forms. Since there can be several registered sessions of the software, there can be multiple active fault management forms. Specifically, there can be up to two Alarm Viewers or Event History Logs open per OVW session (note that the Alarm Viewer can be invoked via the Network Element Status form).

Transaction Handling

The software modules involved in Transaction Handling include the Communications Interface, Object-Oriented Command Processing Engine, Security Service, Security Forms, Configuration Forms, Performance Forms, and Inventory Forms. The following list describes the function of each of these modules.

Communications Interface

The Communications Interface handles the connection and message transport operations between the TimePictra platform and the remote interface of the NEs. It receives TL1 requests from the Command Processing Engine and sends them to the NEs as well as receives TL1 responses from the NEs and sends them to the Command Processing Engine.

Object-Oriented Command Processing Engine

The Command Processing Engine handles transactions (request/response actions) between software processes and NEs. Depending on the nature of the transaction, the Command Processing Engine might interface with the configuration database, or directly with the NE.

As an example, if a software process requests the current configuration of an NE, the Command Processing Engine will extract the necessary information from the database if it's available, or it will generate and pass the necessary TL1 commands to the Communications Interface in order to retrieve the configuration information from the NE. When handling a response, the Command Processing Engine receives the TL1 response from the Communications Interface, extracts the necessary information, and appropriately processes it (passes the response data to the requesting process, updates the database, etc.).

Security Service

Provides security management functions for the software. Security class, level, and authentication are provided by the Security Service.

Security Forms

These are the user interfaces to the security management functions of the software. The current software release contains forms for system user and NE user administration, and management domain administration.

Configuration Forms

These are the user interfaces to the configuration management functions of the software. The configuration forms include the current NE configuration forms and the Firmware Download form.

Current NE configuration modifications made using the Configuration:Modify form take priority over modifications made via a local interface. Since there can be several registered sessions of the software, there can be multiple active

Configuration forms. Specifically, there can be no more than one Configuration:Modify form open per NE. No more than two Configuration:View forms per OVW session is recommended.

Performance Forms

This is the user interface to the performance management functions of the software, called the Performance Monitor. Since there can be several registered sessions of the software, there can be multiple active Performance forms. Specifically, there should be no more than one Performance Monitor form open per NE (no more than two per OVW session is recommended).

Inventory Forms

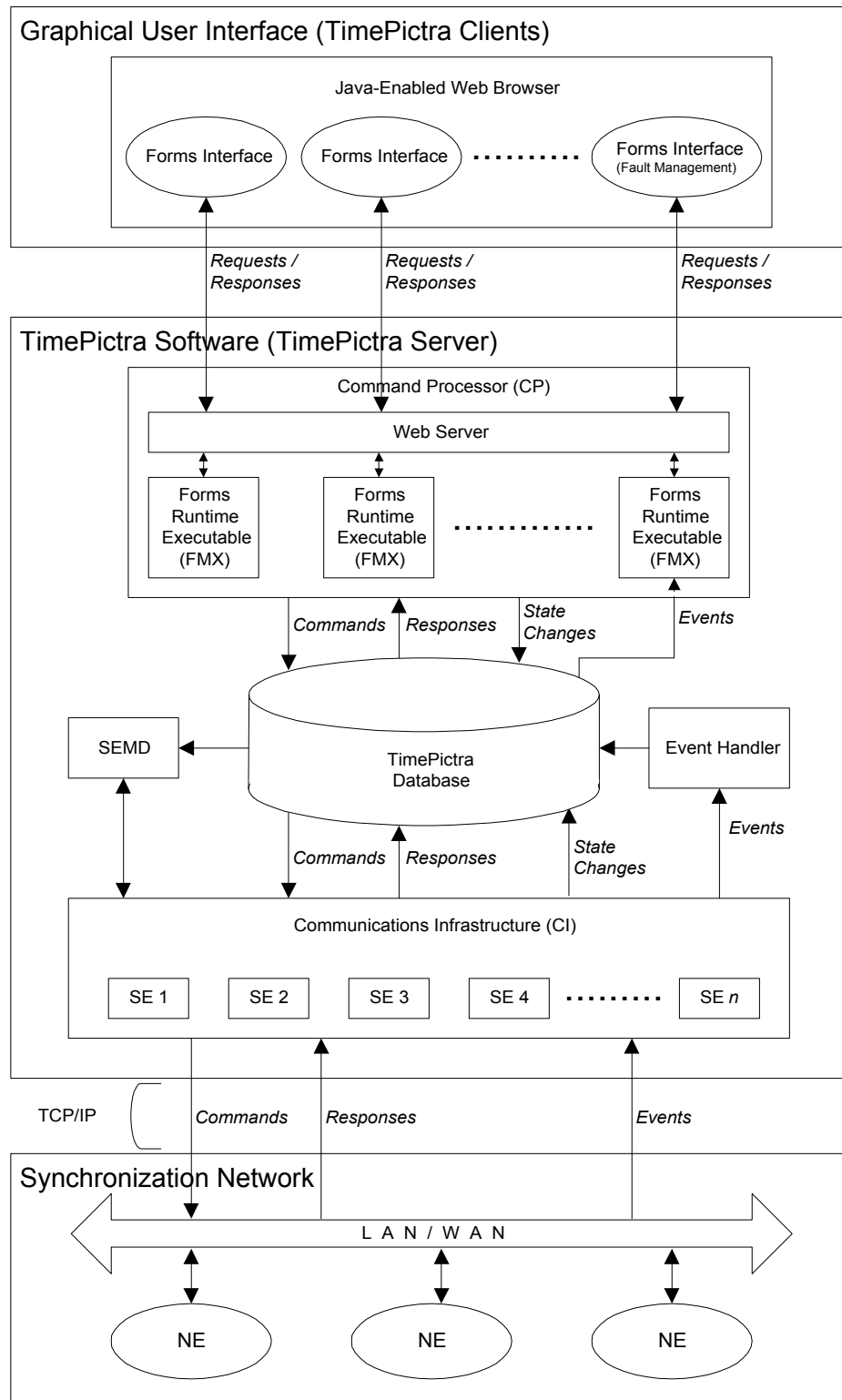
This is the user interface to the inventory management functions of the software. Since there can be several registered sessions of the software, there can be multiple active Inventory forms. Specifically, it is recommended that there be no more than two Inventory forms open per OVW session

Web Subsystem

The web subsystem facilitates the management of network elements through a Web-based graphical user interface. The GUIs are Oracle Forms-based. Display on client platforms is handled through Java applets, which are downloaded on-demand from server to client from the Oracle 9i Application Server, which runs on the TimePictra server platform. The TimePictra database serves as the central repository for network management-related information.

Figure 2 shows the major subsystems that comprise the Web subsystem.

Figure 2. Block Diagram



The following brief descriptions explain the general responsibilities of the major subsystems, and their function during transaction handling and event handling operations.

Communications Infrastructure and Service Element Management Daemon

The *Communications Infrastructure (CI)* subsystem is made up of *Service Elements (SEs)*, that handle the communication links between the software and the NEs in the network. SEs are created and deleted on an as-needed basis as NEs are managed and unmanaged. SEs also update the database regarding NE state changes, and handle response timeouts. SEs can handle communication links for approximately 50 NEs.

The *Service Element Management Daemon (SEMD)* is launched when the software is started. The SEMD is responsible for dynamically creating SEs as NEs are managed. Once an SE is created, the SEMD is responsible for monitoring the health of the SE, and notifying the SE when the database has a command to send to a NE under its control. When NEs are unmanaged, the SEMD is responsible for deleting SEs that no longer maintain links to any managed NEs.

During transaction handling, the SEs forward TL/1 commands from the database to the NEs under their control. They also capture response streams from the NEs, place them into the database, and update the TL1_State in the database to signal to the Command Processor that a response is available (TL1_State serves as a signal between the various software subsystems as to the status of TL/1 commands and responses). SEs also parse the response stream for events, and forward the events to the Event Handler as part of event handling.

Event Handler

The *Event Handler* receives all events that have been parsed from the NE response streams by the SEs, and forwards those events that are valid to the TimePictra Database.

TimePictra Database

The *TimePictra Database* serves as the central data repository for network element management information, as well as information regarding the other TimePictra subsystems. The database contains tables that store information regarding the configuration attributes of the NEs, the state of the NEs, pending TL/1 commands, responses from NEs, and NE alarms and events.

During transaction handling, the TimePictra database receives and stores pending TL/1 commands from the Command Processor. The TimePictra database also receives and stores responses that have been forwarded from SEs. As part of event handling, the TimePictra database receives and stores alarms and events that have been forwarded by the Event Handler, and forwards these events on-request to fault management-related Forms Runtime Executables (FMXs).

Command Processor

The *Command Processor (CP)* contains the Oracle *Web Server* and is distributed across various *Forms Runtime Executables (FMXs)*, and an associated database library. A given FMX is started when the user starts the associated Forms Interface by invoking a dialog box associated with the TimePictra user session.

During transaction handling, an FMX receives requests from its associated Forms Interface, constructs the TL/1 commands that are necessary to satisfy the requests, forwards the TL/1 commands to the TimePictra database, and updates the TL1_State to signal the SEMD that a command is pending. For responses, an FMX receives pertinent TL/1 responses from the TimePictra database, extracts the information necessary to satisfy the original Forms Interface requests, and sends the final response information to the associated Forms Interface in the client session. The FMXs that are associated with Fault Management operations handle the retrieval, processing, and forwarding of alarm and event information from the TimePictra Database to the associated Forms Interfaces (Launch Pad, Alarm Viewer, and Event Log) on-demand as part of event handling.

Graphical User Interface

In the Web subsystem, the Graphical User Interface (GUI) consists of *Forms Interface* applets that run within a *Java-Enabled Web Browser*. The Web Browser uses the Oracle JInitiator plug-in, which is the Oracle Java Virtual Machine that allows Oracle Developer applications, such as Forms, to run within the browser. The Forms Interfaces simply pass user actions to the associated FMXs in the CP, and display responses to the user.

Upon TimePictra session start-up, the browser launches a separate HTML page. From that page, the initial Forms Interface applet - the "Launch Pad" - starts. All other Forms Interface applets are then spawned from the "Launch Pad."

Heartbeat and Alarm Synchronization Processes

The software uses a Heartbeat daemon to periodically check the connectivity between the software and each NE being managed by the software. An Alarm Synchronization process ensures that the alarms as displayed to the user match the alarms active at the NEs. The following paragraphs explain these processes:

Heartbeat Daemon

A Heartbeat task, also known as the *Heartbeat daemon*, periodically checks to determine whether or not each NE is available.

In operation, the Heartbeat task sequentially goes through the list of managed NEs in the TimePictra database and performs the following function on each NE:

- The Heartbeat task monitors each of the NEs for a keep-alive message every 15 to 20 minutes. If the heartbeat task does not detect a keep-alive message from a given NE in the time frame noted, it sends the NE a heartbeat command. If the NE responds to the command, the Heartbeat task sets the "available" flag in the database for the NE to TRUE. If the NE does not

respond to the command, the Heartbeat task sets the “available” flag in the database for the NE to FALSE.

The “available” database flag that is set by the Heartbeat task is subsequently used by the software to display the status of the NE to the user.

Alarm Synchronization

The software periodically obtains a list of active alarms from each NE and compares these with the alarms in its database, which are the alarms shown in the Alarm Viewer. During this comparison, any alarms that are in the TimePictra database (hence, still active in the Alarm Viewer) but are no longer active in any NE are considered to be expired alarms. When these alarms are detected, they are marked as “Cleared By System,” and transferred from the Alarm Viewer to the Event Log.

Note: In the current version, the alarm synchronization process synchronizes the alarms at start-up and then repeats every 12 hours.

System Requirements

The software requires a workstation or server running the HP UNIX (HP-UX) operating system. The recommended configuration:

- For up to 250 NEs - 1 GB RAM and 36 GB Hard Disk Space
- For 250-500 NEs - 1.5 GB RAM and 36 GB Hard Disk Space
- For 500-1000 NEs - 2 GB RAM and 36 GB Hard Disk Space
- For 1000-1500 NEs - 2.5 GB RAM and 36 GB Hard Disk Space
- HP C-Class or higher Server

Note: A C-Class workstation can be used if the user configuration is four concurrent X-Term users or eight Web users. A D/K-Class server is recommended if the user configuration is eight concurrent X-Term users or eight+ Web users.

- 19-inch 1280-by-1024 Monitor
- HP-UX version 11i: Minimal Technical Operating Environment

Prerequisites

- Oracle 9i (Database Standard Edition)
- Oracle 9i (Application Server Enterprise Edition)
- HP OpenView Network Node Manager release 6.2x (optional)
- Gateway machine name and address

- TimePictra CD
- June 2002 Quality Pack for HP-UX 11i (downloadable from the Internet)
- Java SDK 1.2.2.13 (downloadable from the Internet)

TimePictra Web Client System Requirements (Windows NT/98/2000/XP Clients)

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

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

WITH THE FOLLOWING PLUG-INS...

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

OR...

- Microsoft® Internet Explorer version 5.01 or higher

WITH THE FOLLOWING PLUG-INS...

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

TimePictra On-Line Help

The current version of the software contains an on-line help system that can be accessed from the TimePictra Main Page, which is displayed in the Web Browser, or via the OpenView menus. The help consists of indexed chapters of the TimePictra User's Guide. The chapters are in Portable Document Format (PDF), for display in any viewer capable of displaying files in PDF format.

Responsibilities of the System Administrator

The system administrator is responsible for maintenance of the TimePictra system. This requires the system administrator to understand both the hardware and the software installed in the Server.

The main responsibilities of the system administrator are as follows:

- Periodic backup of system files and the system database.
- Archive of event log and performance data files.
- Updates to the operating system and software when necessary.
- Implementation of system security measures.

Prerequisite Knowledge

As stated previously, the procedures in this manual assume you have HP-UX, HP OpenView, Oracle database, Developer, and Web Application Server administration experience. This knowledge is useful, and in some cases necessary when performing the tasks in this manual.

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 TimePictra.

The Administration Utility

The procedures in this manual explain how to accomplish system administration tasks using a Software Administration Utility, also known as the “osmfadmin” utility, whenever possible. This utility provides a menu-driven interface for various system administration tasks. It also provides a help menu, from where you can view the help files for the various administration scripts, view the latest on-line guides, etc. The “osmfadmin” utility can be started by typing the following command at the login prompt.

```
osmfadmin
```

The utility is located in the `/opt/osmf/utills` directory. The utility can be run at any time by any valid HP-UX user, however, most operations require the user be logged in as `otroot`, with primary group of `dba`.

Note: If a database-related operation is attempted by any user other than `otroot`, the utility will notify the user that only user `otroot` can perform the operation.

The main menu and sub-menus of the “osmfadmin” utility are shown in Table B.

Table B. “osmfadmin” Menus

Main Menu	Sub-Menus
Status	(none)
Backups	Database Backup Menu <ul style="list-style-type: none"> - Archive Event History/Performance Logs - Perform Online Database Backup - Return to Previous menu - Exit
Database Administration	Database Administration Menu <ul style="list-style-type: none"> - Startup Database - Shutdown Database - Startup TimePictra daemons - Shutdown TimePictra daemons - Create New Database - Return to Previous Menu - Exit
Web Server Administration	Web Server Administration Menu <ul style="list-style-type: none"> - Startup Web Server - Shutdown Web Server - Show Status of Web Server - Return to Previous Menu - Exit
Help and Documentation	Help Menu <ul style="list-style-type: none"> - otarchive.ks - otddbbackup.ks - otdbrecover.ks - osmfweb - System Backup/Recovery - Setup Reports Server - Return to Previous Menu - Exit
Exit	(none)

This page intentionally left blank.

Starting and Stopping TimePictra

The procedures in this chapter explain how to start and stop a server-side software session.

Start a Software Session

Use Procedure A to start a session of the software.

Note: All steps might not be necessary, for example, the TimePictra workstation (or server) might already be powered on.

Procedure A. Start a Software Session

2

Step	Action
<i>Power-Up the TimePictra Workstation/Server</i>	
1	If the TimePictra workstation (or server) has already been powered up, skip to Step 4 under Verify the Oracle Database is Running.
2	Set the power switches on the monitor and TimePictra workstation/server to on. The power indicators light when power is switched on. As the workstation/server starts up, it runs a series of self tests during which numerous messages appear. Once the start-up sequence is complete, the HP CDE login window appears.
3	Log in at the HP CDE login screen as otroot, and enter the otroot password. After the login is complete, a terminal window containing the HP-UX otroot prompt might appear. If this window does not appear, open one.
<i>Verify the Oracle Database is Running</i>	

Note: The Oracle database is started upon power-up of the TimePictra workstation/server. The following steps verify it is running, and start it if necessary.

Procedure A. Start a Software Session (Cont'd)

Step	Action
4	<p>Type the following at the otroot prompt to check if the Oracle database is running:</p> <pre>ps -ef grep -eMV10 -etnslnr</pre> <p>The information returned should suggest that all necessary Oracle database processes are running, and should appear similar to the following (the PIDs, times, order, etc., might be different):</p> <pre>otroot 17849 1 0 10:31:51 ? 0:01 ora_j006_MV10 otroot 20956 20949 0 10:33:06 ? 0:00 oracleMV10 (DESCRIPTION=(LOCAL=YES) (ADDRESS=(PROTOCOL=beq))) otroot 20933 20929 0 10:33:06 ? 0:00 oracleMV10 (DESCRIPTION=(LOCAL=YES) (ADDRESS=(PROTOCOL=beq))) otroot 20937 20931 0 10:33:06 ? 0:00 oracleMV10 (DESCRIPTION=(LOCAL=YES) (ADDRESS=(PROTOCOL=beq))) otroot 16991 1 0 10:31:28 ? 0:00 ora_d001_MV10 otroot 16917 1 0 10:31:26 ? 0:00 /opt/oracle/app/oracle/product/9.0.1/bin /tnslsnr LISTENER -inhe otroot 16951 1 0 10:31:28 ? 0:00 ora_pmon_MV10 otroot 16953 1 0 10:31:28 ? 0:00 ora_dbw0_MV10 otroot 16961 1 0 10:31:28 ? 0:00 ora_ckpt_MV10 otroot 16959 1 0 10:31:28 ? 0:00 ora_lgwr_MV10 otroot 16969 1 0 10:31:28 ? 0:00 ora_reco_MV10 otroot 16967 1 0 10:31:28 ? 0:00 ora_smon_MV10 otroot 16977 1 0 10:31:28 ? 0:00 ora_s000_MV10 otroot 16975 1 0 10:31:28 ? 0:00 ora_cjq0_MV10 otroot 16985 1 0 10:31:28 ? 0:00 ora_d000_MV10 otroot 16983 1 0 10:31:28 ? 0:00 ora_s001_MV10 otroot 16993 1 0 10:31:28 ? 0:00 ora_arc0_MV10 otroot 17829 1 0 10:31:51 ? 0:00 ora_j000_MV10 otroot 17845 1 0 10:31:51 ? 0:01 ora_j005_MV10 otroot 21133 21131 0 10:33:12 ? 0:00 oracleMV10 (DESCRIPTION=(LOCAL=YES) (ADDRESS=(PROTOCOL=beq))) otroot 21066 21062 0 10:33:10 ? 0:00 oracleMV10 (DESCRIPTION=(LOCAL=YES) (ADDRESS=(PROTOCOL=beq))) otroot 20944 20930 0 10:33:06 ? 0:00 oracleMV10 (DESCRIPTION=(LOCAL=YES) (ADDRESS=(PROTOCOL=beq)))</pre>
5	<p>If the information returned in the previous step indicates the Oracle database is running, skip to Step 15 under Start the Oracle 9i Application Server, if necessary. If no information is returned, continue with the next step.</p>
6	<p>From the Korn shell (ksh), start the TimePictra Administration utility:</p> <pre>osmfadmin</pre> <p>When started, the TimePictra Administration Utility main menu appears.</p>
7	<p>Choose the following menu items, in the order shown, to start the Oracle database (enter the number next to the menu item).</p> <ul style="list-style-type: none"> • Database Administration(from the osmfadmin main menu) • Startup Database(from the Database Administration menu) • Return to previous menu



Procedure A. Start a Software Session (Cont'd)



Step	Action
8	<p>Choose the following menu item to check the status of the TimePictra-related software processes:</p> <ul style="list-style-type: none"> • Status (from the osmfadmin main menu) <p>The report that is returned contains information on the current status of the TimePictra-related software processes. The following shows what the report will indicate if these processes are running:</p> <pre>##### Name Status Message COMMAND DISPATCHER UP since JAN-12-2001 11:20:27 SEMD UP since JAN-12-2001 11:20:27 EVENT RECEIVER UP since JAN-12-2001 11:20:27 EVENT ACTION UP since JAN-12-2001 11:20:27 OV COMMAND PROCESSOR UP since JAN-12-2001 11:20:27 OV ALERT UP since JAN-12-2001 11:20:27 DATABASE JOBS UP since JAN-12-2001 11:20:27 Status of SE processes Port Status PID Time Started 5005 UP 25959 JAN-10-2001 10:28:15 System Health Check ##### DISK SPACE within limits DATABASE TABLES within limits</pre>

Start the TimePictra-related Software Processes

9	<p>Type the following command to start the TimePictra Administration utility if it is not currently running:</p> <pre>osmfadmin</pre> <p><i>Note:</i> The above command must be run from the Korn shell (ksh), with user otroot.</p> <p>When started, the TimePictra Administration Utility main menu appears.</p>
---	--

Procedure A. Start a Software Session (Cont'd)

Step	Action
10	<p>Choose the following menu item to check the status of the TimePictra-related software processes:</p> <ul style="list-style-type: none"> • Status (from the osmfadmin main menu) <p>The report that is returned contains information on the current status of the TimePictra-related software processes. The following shows what the report will indicate if these processes are running:</p> <pre>##### Name Status Message COMMAND DISPATCHER UP since JAN-12-2001 11:20:27 SEMD UP since JAN-12-2001 11:20:27 EVENT RECEIVER UP since JAN-12-2001 11:20:27 EVENT ACTION UP since JAN-12-2001 11:20:27 OV COMMAND PROCESSOR UP since JAN-12-2001 11:20:27 OV ALERT UP since JAN-12-2001 11:20:27 DATABASE JOBS UP since JAN-12-2001 11:20:27 Status of SE processes Port Status PID Time Started 5005 UP 25959 JAN-10-2001 10:28:15 System Health Check ##### DISK SPACE within limits DATABASE TABLES within limits</pre>
11	<p>If the status report indicates that any of the TimePictra-related software processes are not up (DOWN), continue with this procedure.</p>
12	<p>Choose the following TimePictra menu items to start the TimePictra-related software processes:</p> <ul style="list-style-type: none"> • Database Administration (from the osmfadmin main menu) • Startup TimePictra Daemons (from the Database Administration menu) <p><i>Note:</i> The TimePictra daemons will not start if any of the daemons are already running. If any of the TimePictra daemons are running, choose the Shutdown TimePictra Daemons menu item from osmfadmin's Database Administration menu, then choose Startup TimePictra Daemons to start them.</p>
13	<p>From the TimePictra main menu, choose Status to re-check the status of the TimePictra system.</p> <p>The status report returned should indicate that all TimePictra-related software processes are up.</p>
14	<p>From the TimePictra main menu, choose Exit to return to the HP-UX prompt.</p>



Procedure A. Start a Software Session (Cont'd)

2

Step	Action
<i>Start the Oracle 9i Application Server, if necessary</i>	
15	<p>Type the following command to start the TimePictra Administration utility if it is not currently running:</p> <pre>osmfadmin</pre> <p>Note: The above command must be run from the Korn shell (ksh) with user "otroot".</p> <p>When started, the TimePictra Administration Utility main menu appears.</p>
16	<p>Choose the following menu items in the order shown to check if the Oracle Web-related processes are running (type the number next to the menu item to choose the item):</p> <ul style="list-style-type: none"> • Web Server Administration (from the osmfadmin main menu) • Show Status of Web Server (from the Web Server Administration menu) <p>The information returned should appear similar to the following (the PIDs will be different), and should suggest that all necessary Oracle 9i AS processes are running (UP and running):</p> <pre>Status of Oracle Web server for TimePictra ##### TimePictra related Oracle Apache processes: otroot 3696 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 3658 1 5 Jun 28 ? 0:12 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 3677 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 3678 3658 1 Jun 28 ? 1:34 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 3695 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 3697 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 3698 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 3699 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 4048 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 4373 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 4049 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d otroot 4050 3658 0 Jun 28 ? 0:00 /opt/oracle/app/oracle/product/9iAS/Apache/ Apache/bin/httpd -d ##### ORACLE Forms Server Status: Forms Server is UP. #####</pre> <p>If the information returned suggests that the Web-related processes are running, go to Step 9. Ensure that the TimePictra-Related Software Processes are Running. If the information returned indicates that some of the related processes are not running (DOWN), continue with the next step.</p> <p>Note: Use the Page Up and Page Down keys to view all of the Web Server status information if necessary.</p>

.....

Procedure A. Start a Software Session (Cont'd)

Step	Action
17	Choose the following osmfadmin menu item to start the Oracle Web-related processes: <ul style="list-style-type: none">• Startup Web Server (from the Web Server Administration menu) <i>Note:</i> Oracle startup messages are logged to the file /tmp/web_startup.log.
18	Repeat Step 10 to check the status of the Web Server and to ensure that all related processes are now reported and the Form Server is UP.
<i>End of Procedure</i>	

Stop a Software Session

Procedure B explains how to stop TimePictra.

Procedure B. Stop TimePictra

2

Step	Action
	<p><i>Caution:</i> Failure to correctly end the session might result in corruption of system data or data loss.</p> <p><i>Note:</i> To perform system maintenance, such as system backup, you might need to shut down the software and related Oracle processes. When the workstation/server is properly shut down using the command:</p> <pre>shutdown -h</pre> <p>the software and related processes are brought down gracefully. If you need to shut down the software and related processes, but not the workstation or server, use the following steps.</p>
1	Log into HP-UX as otroot, and enter the otroot password.
2	Type the following command to start the TimePictra Administration utility if it is not currently running: <pre>osmfadmin</pre> <p><i>Note:</i> The above command must be run from the Korn shell (ksh) with user "otroot".</p> <p>When started, the TimePictra Administration Utility main menu appears.</p>
3	Choose the following menu items in the order shown to shut down the Oracle Web Server: <ul style="list-style-type: none">• Web Server Administration (from the osmfadmin main menu)• Shutdown Web Server (from the Web Server Administration menu) <p>Choose the following menu items in the order shown to cause all TimePictra-related processes to terminate:</p> <ul style="list-style-type: none">• Database Administration (from the osmfadmin main menu)• Shutdown TimePictra Daemons (from the Database Administration menu) <p>Choose the following menu items in the order shown to shut down the Oracle database:</p> <ul style="list-style-type: none">• Database Administration (from the osmfadmin main menu)• Shutdown Database (from the Database Administration menu)

.....

Procedure B. Stop TimePictra (Cont'd)

Step	Action
4	Choose the following menu item to check the status of the TimePictra system from osmfadmin Main Menu: Status (from the osmfadmin main menu) The status report should indicate that the TimePictra-related processes are no longer up.
<i>End of Procedure</i>	



This page intentionally left blank.

Routine System Administration

This chapter explains how to check the health of the TimePictra server and processes, how to archive performance history data and events, and how to clean up temporary files.

Chapter 3

Check the Health of the System (osmfssystem)

The “osmfssystem” script is run on the TimePictra server platform to determine the overall health of the platform. Database table and disk utilization are also monitored using the script. The script is configured to run automatically (see *Automatic Script Execution*, below), or it can be run manually to perform a system health check at any time (see *Manual Script Execution*, below).

Note: The “osmfssystem” script can effectively be executed by running the “osmfadmin” utility, then choosing the Status menu item in the “osmfadmin” main menu. Certain script options cannot be included when running the “osmfssystem” script via the “osmfadmin” utility. For more options, like e-mail notification, run the “osmfssystem” script from the command line (see *Manual Script Execution*, below).

Automatic Script Execution

The “osmfssystem” script is located in the /opt/osmf/utils directory. The script is configured to run automatically, via cron, every 20 minutes. The following entry is included in the /var/spool/cron/crontabs/otroot file:

```
00,20,40 * * * * { . /opt/osmf/config/env/osmf-db.env; /opt/osmf/
utils/osmfssystem -an; }
```

This periodic run will check disk space usage and TimePictra database table utilization. Default disk thresholds are set at product installation time. These values are configurable within the body of the “osmfssystem” script. The following are the default values.

/	ROOT_LIMIT_PERCENT=70
/stand	STAND_LIMIT_PERCENT=60
/opt	OPT_LIMIT_PERCENT=80
/home	HOME_LIMIT_PERCENT=70
/var	VAR_LIMIT_PERCENT=80
/tmp	TMP_LIMIT_PERCENT=80
/usr	USR_LIMIT_PERCENT=80
/*	DEFAULT_LIMIT_PERCENT=80
/SD_CDROM	CDROM_LIMIT_PERCENT=101

Each numeric value in the above table is a threshold value that represents a percent of the total space available for the respective logical volume. If the naming convention is different for the volumes, then the default limit will be selected. These values can be adjusted to fit the environment. The goal is to give some warning in case there is a problem with disk space.

The database table thresholds are preconfigured by the software and should not be changed. If any monitored tables are more than 50 percent utilized, the software will generate a warning email message which is sent to the otroot user. The mailing

list can be modified to include anyone who should be notified of warnings. The ADMIN variable in the body of the "osmfssystem" script contains the list of users to notify. For non-critical database thresholds, email will be sent once a week. For non-critical disk thresholds, email will be sent once a day. For critical threshold crossings, email will be sent every time the automated script runs (every 20 minutes by default).

Manual Script Execution

The script can be run manually at any time. Note that the user must have the proper permission to access the database status information. If proper permissions are not granted, the script will ignore the request for this information when run.

The command and its options are as follows (the script is located in the /opt/osmf/ utils directory):

```
osmfssystem <-a|d|t><n|v|nv>[h]
```

The first three options (a, d, t) determine the function that the script will perform; only one of these options should be issued per command line. The second three options (n, v, nv) determine the output of the script; if the command is issued without the "n" or "v" option, no output will be generated. The last option (h) returns the help file for the script.

Options

- a Perform all available checks for which a user has permissions.
- d Perform a disk space check.
Check the size of and warning threshold values for the following TimePictra database tables:
 - historic_events
 - pm_log
 - current_alarms
 - raw_log
 - nes50 percent is the first threshold which will generate a warning message. The user must be otroot to access this information.
- t E-mail notification if warning conditions exist. If this option is selected, e-mail will be sent to all users assigned to the ADMIN variable in the "osmfssystem" script. E-mail will only be sent if a warning threshold has been crossed. E-mail messages are limited to once a week for database warnings, and once a day for disk warnings. Critical warning e-mail will be sent every time the script is run.
- n Verbose output. This option must be selected to display any information to stdout.
- h Display the help file for the "osmfssystem" script.

Example "osmfssystem" E-Mail Message

The following text might be included in an e-mail message sent by "osmfssystem" in response to the current alarms table becoming full. The e-mail, which would have the subject "WARNING: TimePictra System Status," would be sent to the otroot user and any users included in the script's ADMIN variable. Since this e-mail is being sent in response to a critical threshold crossing, it will continue to be sent every time the script runs until the condition is remedied.

```
#####  
WARNING: Database Table Space threshold has been crossed  
Table Space current_alarms is Greater than 100% CRITICAL  
#####
```


Check Status of TimePictra Processes (osmfstatus)

The “osmfstatus” script is run on the TimePictra server platform to determine the status of various TimePictra processes, such as the Command Dispatcher, Service Element Manager Daemon (SEMD), and Service Elements (SEs). An option is included which also displays status information for each NE under control of each SE process.

The command and its options are as follows (the script is located in the /opt/osmf/ utils directory):

```
osmfstatus [-v][-S SE_Port_#][-h]
```

Options

- v Indicates verbose tracing of the status. When this option is selected, status information for the network elements under control of each of the Service Elements is returned.
- S Returns the status of only the SE connected at the port given in the *SE_Port_#* parameter.
- h Displays the help file for the “osmfstatus” script.

Figure 3 shows an example output of the osmfstatus script when no options are given. In this example, one SE process is running at port 5018.

Figure 3. Example “osmfstatus” Output with No Options

Name	Status	Message
COMMAND DISPATCHER	UP	since JAN-16-2001 10:53:11
SEMD	UP	since JAN-16-2001 10:53:11
EVENT RECEIVER	UP	
EVENT ACTION	UP	
OV COMMAND PROCESSOR	UP	
OV ALERT	UP	
DATABASE JOBS	UP	

Status of SE processes			
Port	Status	PID	Time Started
5018	UP	4008	JAN-21_2001 12:59:17

Table C explains the various fields in the status portion for the TimePictra processes.

Table C. TimePictra Process Status Fields

Column	Description
Name	The name of the TimePictra process.
Status	UP if the process is currently running, or DOWN if the process is currently not running. The Command Dispatcher and SEMD will give an "Unknown Database Error" if the database is down.
Message	If the process is currently running, this column will give the date and time when the process was started, if it is available. If the process is currently not running, this column will be blank.

Table D explains the various fields in the status portion for the SE Processes.

Table D. SE Process Status Fields

Column	Description
Port	The port at which the Service Element is connected. Each SE process will be connected at a different port.
Status	UP if the process is currently running, or DOWN if the process is currently not running.
PID	The Process Identifier of the SE process.
Time Started	If the process is currently running, this column will give the date and time when the process was started. If the process is currently not running and was shut down in a normal fashion, this column will show NA (not available). <i>Note:</i> If an SE process is forcibly shut down (killed, for example) the SEMD process will restart it.

Figure 4 shows a sample output of the osmfstatus script when the verbose option is used. In this example, all TimePictra processes are up, and one SE process is running at port 5018. Note that in verbose mode, status is also given for Network Elements being managed by the SE processes.

Figure 4. "Example "osmfstatus" Output in Verbose Mode

```

Name                Status    Message
COMMAND DISPATCHER  UP       since JAN-16-2001 10:53:11
SEMD                UP       since JAN-16-2001 10:53:11
EVENT RECEIVER      UP
EVENT ACTION        UP
OV COMMAND PROCESSOR UP
OV ALERT            UP
DATABASE JOBS       UP

                        Status of SE processes
=====
Port ..... 5018
State ..... UP
Process Id ..... 4008
Operational since ..... JAN-21_2001 12:59:17
Network Elements Managed :
  Name    Type    Status  Address      Port    Last Comm. Time
TIMEHUB1  HP55500  Y/Y    192.207.8.109 2006    JAN-21_2001 18:45:21
TIMEHUB2  HP55500  N/N    192.207.10.181 6007    JAN-21_2001 17:25:25
=====

```

The Port, State, Process Id, and Operational since fields are the same as the Port, Status, PID, and Time Started fields described above. Table E explains the various fields in the status portion for each Network Element being managed.

Table E. Network Element Status Fields

Column	Description
Name	The name of the Network Element. This is the CLI code for the NE that was entered when the NE was added to the network topology. <i>Note:</i> NE does not actually get assigned to a Service Element until the NE is managed by TimePictra.
Type	The type of Network Element.

Table E. Network Element Status Fields (Cont'd)

Column	Description
Status	<p>The status in this column is given in the form X/Y.</p> <p>The first indication (X) shows the status of the AVAILABLE flag, which is Y if the NE is responding to commands from TimePictra, or N if the NE is not responding to commands.</p> <p>The second indication (Y) shows the status of the SERVICE AVAILABLE flag, which is Y if the TCP/IP connection between TimePictra and the NE is working, or N if the TCP/IP connection is not working.</p> <p><i>Note:</i> The above two status flags can be used to effectively troubleshoot communications problems between NEs and TimePictra. For example:</p> <ul style="list-style-type: none"> - A status of N/Y can indicate that the TCP/IP connection between TimePictra and the Router is good, but that the Management card is faulty, not connected to the Router, or the connection is faulty. - A status of N/N indicates that a working connection between TimePictra and the Router does not exist. Note that a status condition Y/N will never exist since if the TCP/IP connection is not working, the NE will never respond to commands from TimePictra.
Address	The network address (IP address) of the NE.
Port	The port through which the NE is assigned to communicate with TimePictra.
Last Comm. Time	The date and time when network communications last took place between the SE process and the NE.

Archive Performance History Data and Events

Note: The purpose of the archive script described in this section is to maintain the database within limits under normal operating conditions, not for system backup purposes. Backup and recovery utilities, which are described in the *System Backup and Recovery* chapter, are provided to backup the system so that the system can be recovered in the event of a failure.

A process copies events and performance history data that is older than 15 days to special *archive tables* in the database. These archive tables have pre-allocated space for a large number of events. Software functionality problems might occur if the tables fill up. The archive tables, therefore, should periodically be cleaned. Procedure C, below, can be used to export the data contained in the archive tables, and consequently clean them out.

In Procedure C, an archive script is run. This script does the following:

- Copies performance history data and events from the archive tables to a report file.
- Names the report file to reflect the date range of the data it contains.
- Deletes the information from the archive tables.
- Removes any entries that have accumulated in the event error log (which contains any events that could not be processed due to an error).

To complete the archive process, the system administrator should copy the export file to an offline storage device, such as a local tape drive, and then delete the report file from the system. Procedure C explains this.

Note: Procedure C must be performed as part of regularly-scheduled system maintenance to ensure that the system continues to operate efficiently. *Symmetricom recommends that the procedure be performed at least once every week if a large number of NEs are managed.*

Procedure C. Archiving Performance History Data and Events

Step	Action
1	If not logged into HP-UX as otroot, log in as otroot, then enter the otroot password.
2	Type the following command to start the TimePictra Administration utility: osmfadmin When started, the TimePictra Administration Utility main menu appears.

Procedure C. Archiving Performance History Data and Events (Cont'd)

Step	Action
3	<p>Choose the following menu items in the order shown to run the archive script (type the number next to the menu item to choose the item):</p> <ul style="list-style-type: none"> • Backups (from the TimePictra Administration main menu) • Archive Event History/Performance Logs (from the Database Backup menu) <p>The archive script produces a report file in the /var/tmp directory with the name "exp<code>olddate</code>-<code>mrdate</code>" where <code>olddate</code> is the date of the oldest data in the file, and <code>mrdate</code> is the date of the most recent data in the file. As an example, if the oldest data in the file was generated on January 15, 2001 and the most recent data in the file was generated on January 24, 2001, the file name would be exp010115-010124. When the archive script finishes running, the HP-UX prompt returns.</p> <p><i>Note:</i> If the archive script determines that the archive tables contain no data, the message "No events found for archiving" is returned.</p> <p>The report file is a text file that can be viewed using any text editor. The report file is comma delimited and can be imported into a spreadsheet for sorting and review. The report file contains information needed to interpret the data in the file. Refer to the <i>Example Archive Report File</i>, which follows this procedure, for an example of a typical report file.</p> <p><i>Note:</i> Perform the following steps to copy the file to the local tape drive.</p>
4	<p>Ensure that a tape is inserted into the local tape drive (/dev/rmt/0mn).</p>
5	<p>Exit the osmfadmin utility, then copy the report file to the tape.</p> <p>You can use any of a number of methods to copy the file (tar, cpio, etc.). For example, if the file being copied to tape is exp010115-010124, the following can be used:</p> <pre>find /var/tmp/exp010115-010124 cpio -ocmxvB /dev/rmt/0mn</pre>
6	<p>After the file has been copied to the local tape drive with no errors, type the following command to delete the report file:</p> <pre>rm reptfile</pre> <p>Where <i>reptfile</i> is the name of the report file.</p>

End of Procedure

Example Archive Report File

Historic Events Archive

=====

```
133,TS3000_1,RO-B,5,NSA,70-01-01 00:01:17,LOS,RO B LOSS OF SIGNAL
134,TS3000_1,RO-A,-2,CL,70-01-01 00:01:27,LOS,RO A LOSS OF SIGNAL
135,TS3000_1,TS3000,-2,CL,70-01-01 00:02:02,MODE,POWER UP RESTART
136,TS3000_1,TS3000,-2,SC,70-01-01 00:02:02,WARMUP,BT3 WARMUP
362,TS3000_1,TS3500,2,NSA,03-01-01 02:02:01,WARMUP,BT3 WARMUP
11,DCD_505XX_1,E1-TO-5,2,SA,02-11-25 10:18:37,UNEQUIPPED,null
```

Performance Log Archive

=====

```
TS3000_1,SPAN-A,MTIE,0,0,0,0,0,0,0,0,0,0,0,0,0,70-01-01 15:45:00,,N
TS3000_1,SPAN-B,MTIE,0,0,0,0,0,0,0,0,0,0,0,0,0,70-01-01 15:45:00,,N
```

Transaction Log Archive

=====

Clean Up Temporary Files

Some forms, such as the Event History Log and Alarm Viewer, will on occasion create large files in the `/var/tmp` directory. These files are created when, for example, the Event History Log dialog box is open and you scroll to view events that are out of view. In this case, the scrolled events are placed into a temporary file with the name `AAApid.TMP` (*pid* is a process identifier). If the quantity of events is large, an attempt to view all of them can result in a large temporary file.

As long as no forms are opened, there should be no temporary files of the form `AAApid.TMP` left in the `/var/tmp` directory which have TimePictra users or user `otroot` as owners. The system administrator might periodically check the `/var/tmp` directory with no forms opened to ensure that these temporary files have been cleaned up properly.

If these temporary files do appear in the directory under the above-mentioned conditions, type the following commands to remove them:

```
cd /var/tmp
rm AAA*.TMP
```

Note: There may be more than one `AAApid.TMP` file in the directory. It is safe to remove them all as long as no forms are opened and they are owned by TimePictra users or user `otroot`. It is also important to note that there might be other files in the directory that start with `AAA`, but only those with the `.TMP` extension should be deleted. These `.TMP` files will only be left if there was a system or application problem which did not allow the automatic cleanup process to complete.

System Backup and Recovery

The procedures in this chapter can be used to perform regularly scheduled backups of the TimePictra system. If a disaster occurs, such as a database or system crash that leads to data corruption, the recovery information in this chapter can be used to recover from the failure.

System Backup

It is important to maintain a recent backup of the entire TimePictra operating system. In the event of hardware failure, operator error, or other disaster, the backup will provide the most direct path to restoration of the system and user data.

Backup Categories

The TimePictra system-level backup can be divided into three broad backup categories:

HP-UX Core System Backup

The HP-UX core system backup is an offline image backup of the boot disk. This will backup the entire disk which provides a complete path to recovery from the time the backup was performed. There should always be a HP-UX Core Backup media prepared by the System Administrator.

System Backup

This is an online backup of all files *EXCEPT* the TimePictra database. (in other words, excluding the /opt/oradata directory which contains the TimePictra database files). This will backup the entire system, applications, and user files needed to recover from a system that is already running. This backup does not provide the low level formatting of the disk drive as the HP-UX core system backup does.

Note: If the TimePictra database directory (/opt/oradata) is a link, then the directory that /opt/oradata points to should be excluded from the System Backup.

One method of performing the online System Backup is with SAM, the System Administration Manager, which is part of the HP-UX product. SAM offers the Backup and Recovery menu which allows automated backups as well as interactive backups and recoveries. Files may be included or excluded when defining the scope of the backup or recovery. Each Backup may be automated and set to run at a predetermined time without user interaction.

Full and Incremental backups may be performed using SAM. Full backup will backup the entire system. Incremental backups will backup any file that has changed since the last Full backup.

It is best if the Oracle and TimePictra processes are not running for this backup. Oracle and TimePictra have processes which will have file locks. They may show some indication of this during the backup. This should not inhibit the backup from completing. For best results, however, the Oracle and TimePictra processes should be shut down. It is still possible to depend on the HP-UX Core System Backup for the system recovery at this level, if the applications cannot be interrupted. Even though the TimePictra-associated applications may be running during the backup, they *should not* be running during a system recovery.

TimePictra Database Backup

The TimePictra Server platform automatically performs nightly backups of database-related files via a backup utility which runs as a cron job. The operating system, application software, and user files should be backed up by the System Administrator.

Special considerations should be observed when backing up an online database. The database will have active files and locks that may prevent some backup programs from accessing certain files. It is strongly recommended that the TimePictra database be excluded from the system backup. The backup of the TimePictra database files should be performed using the backup utility which takes online backups, (“hot backups”) and is designed specifically for the TimePictra database.

Backup Requirements

Based on different needs and configurations, backup requirements and methods will vary. As part of the TimePictra system management solution, the following backup scenario is recommended:

HP-UX Core System Backup

Offline Core system backup should be done every 3 months, or whenever hardware additions or software changes are made. This backup will ensure a properly bootable system in the event of a disk replacement. This backup must be scheduled and users notified since the system must be offline.

System Backup

Complete backup of system (excluding the TimePictra Database) should be done once every week using SAM or other backup utility.

Note: To exclude the TimePictra database from the system backup, exclude the /opt/oradata directory. If /opt/oradata is a link, then the directory that /opt/oradata points to should be excluded.

Note: It is recommended that you shutdown the TimePictra and Oracle processes during a System Backup. This is not required, however, a greater level of data integrity is possible while the applications are not running.

TimePictra Database Backup

TimePictra database backup should be done every night using the backup utility.

The HP-UX Core System Backup should be considered very important and be kept current. Based on needs, the System Backup may be performed more or less frequently. If no changes are made to the system or user files between backups, the System Backup cycle time may be increased. If frequent changes are made to user files, then incremental backups may also be scheduled in the System Backups. The

TimePictra database should be backed up at least once a day, which is the default configuration shipped with the software.

Backup Procedures

The following backup procedures are included as part of the TimePictra management solution.

HP-UX Core System Backup

Procedure D will create a system recovery tape which is a clone of the entire boot disk including all software. Most importantly, the file system infrastructure will be reproduced so HP-UX will not have to be reinstalled. The backup tape will allow the system to be recovered to the same point as when the backup was performed.

Procedure D. HP-UX Core System Backup

Step	Action																		
1	Shutdown the TimePictra platform by typing the following command: <code>/etc/shutdown -h now</code>																		
2	Power the platform off and then back on, and then press the ESC key when the following message appears on the screen: <pre>Processor is booting from first available device. To discontinue, press any key within 10 seconds. Note: The above step initiates an attended boot:</pre>																		
3	Load the HP-UX Support CD in the CD-ROM drive.																		
4	Type search: A list of all potential boot devices will be displayed, such as the following (your system might show different PATH information): <table border="1"> <thead> <tr> <th>PATH Number</th> <th>Device Path</th> <th>Device Type</th> </tr> <tr> <th>-----</th> <th>-----</th> <th>-----</th> </tr> </thead> <tbody> <tr> <td>P0</td> <td>FWSCSI.6.0</td> <td>SEAGATE ST32430W</td> </tr> <tr> <td>P1</td> <td>FWSCSI.5.0</td> <td>SEAGATE ST32430W</td> </tr> <tr> <td>P2</td> <td>SESCSI.3.0</td> <td>HP C1533A</td> </tr> <tr> <td>P3</td> <td>SESCSI.2.0</td> <td>TOSHIBA CD-ROM XM-5401TA</td> </tr> </tbody> </table>	PATH Number	Device Path	Device Type	-----	-----	-----	P0	FWSCSI.6.0	SEAGATE ST32430W	P1	FWSCSI.5.0	SEAGATE ST32430W	P2	SESCSI.3.0	HP C1533A	P3	SESCSI.2.0	TOSHIBA CD-ROM XM-5401TA
PATH Number	Device Path	Device Type																	
-----	-----	-----																	
P0	FWSCSI.6.0	SEAGATE ST32430W																	
P1	FWSCSI.5.0	SEAGATE ST32430W																	
P2	SESCSI.3.0	HP C1533A																	
P3	SESCSI.2.0	TOSHIBA CD-ROM XM-5401TA																	

Procedure D. HP-UX Core System Backup (Cont'd)

Step	Action
5	<p>Type boot <i>path_num</i></p> <p>Where <i>path_num</i> is the path number of CD-ROM device where the Support CD is loaded. For example, type boot P3 if the CD-ROM device is P3.</p>
6	<p>Answer Y to the question Interact with IPL?</p>
7	<p>Type ode copyutil at the ISL prompt.</p> <p>Note the legend of the "copyutil" output after it scans the system for devices:</p> <p><i>Ty</i> - Device Type 'D' for Disk and 'T' for Tape. <i>Indx</i> - Index number used for referencing the device. <i>Rev</i> - Firmware Revision of the device. <i>Size</i> - Size of the Disk drive or "N/A" for a Tape drive.</p>
8	<p>Type backup.</p>
9	<p>Enter the Disk Index number of the disk to be copied.</p>
10	<p>Enter the Tape Index number of the tape device to copy to.</p>
11	<p>Load the tape into the tape drive when prompted by the "copyutil" program.</p>
12	<p>When ready, type y to continue.</p> <p>Copyutil will display the status of the backup as follows:</p> <pre>10% completed20% completed30% completed40% completed50% completed60% completed70% completed80% completed90% completed100% completed END of BACKUP Please wait while I rewind the tape </pre>
13	<p>Switch off the power to the TimePictra platform, then switch it back on and boot the system as normal.</p>
14	<p>Store the Backup tape in a secure area.</p>

End of Procedure



System Backup

Procedure E explains how to perform a full system backup.

Note: An automated System Backup schedule can be setup in SAM. This schedule must not conflict with the “otddbbackup.ks” database backup which is automatically performed every night. A different backup tape must be used for the System Backup. The “otddbbackup.ks” database backup runs every night at 12:00 am. This time may be adjusted to fit the needs of the environment. Since the System Backup must not interfere with the database backup, the System Administrator should be available to change the tape between backup schedules. If the System Backup is performed once a week for example, then the System Administrator might choose to perform an interactive backup instead of an automated backup.

Procedure E. Full System Backup

Step	Action
1	Log in as otroot and enter the otroot password.
2	Type the following commands to source the TimePictra environment, then start the osmfadmin utility: <pre>. /opt/osmf/config/env/osmf-db.env osmfadmin</pre> <i>Note:</i> The above command must be run from the Korn shell (ksh).
3	Choose the following osmfadmin menu items to stop HP OpenView and the TimePictra-related software processes: <ul style="list-style-type: none">• Database Administration (from the osmfadmin main menu)• Shutdown TimePictra Daemons (from the Database Administration menu)
4	Choose the following menu items in the order shown to shut down the Web Server: <ul style="list-style-type: none">• Web Server Administration (from the osmfadmin main menu)• Shutdown Web Server (from the Web Server Administration menu)
5	Choose the following menu items in the order shown to stop the TimePictra database: <ul style="list-style-type: none">• Database Administration (from the osmfadmin main menu)• Shutdown Database (from the Database Administration menu)
6	Exit the osmfadmin utility, then log in as root and type the following command to start SAM: <pre>/usr/sbin/sam</pre>
7	Double click on the “Backup and Recovery” icon.
8	Double click on the “Interactive Backup and Recovery” icon.
9	Select “Backup Device” from the list that appears.

Procedure E. Full System Backup (Cont'd)

Step	Action
10	Select "Backup Files Interactively" from the "Actions" menu.
11	Select "Specified Files" from the "Select Backup Scope" menu.
12	<p>Include the following files under "Include Files:"</p> <pre> / >Add /stand >Add /opt >Add /var >Add /tmp >Add /usr >Add /home >Add </pre> <p>Note: In the "Include Files" list, include any other mounted logical volumes that you desire to back up.</p>
13	<p>Exclude the following files under "Exclude Files:"</p> <pre> /opt/oradata >Add </pre>
14	<p>Select "OK," then select "OK" in the box that appears. Note: SAM might give a warning about more than one user being logged on to the system. If such a warning appears, select "Yes" to proceed.</p>
15	<p>Select "Yes" in the Confirmation box that appears to proceed.</p> <p>After you click "Yes" to confirm and proceed, SAM will begin the Backup session and will display messages similar to the following:</p> <pre> Starting interactive backup... br_backup: Invoking fbackup. See /var/sam/log/br_log for details. fbackup(1421): no history is available for graph file /etc/sam/br/graphFDAa01970 (below level 0) fbackup(1004): session begins on Tue Jan 16 13:07:52 2001 </pre> <p>In addition, each file will be listed on the display as it is backed up.</p>
16	Allow the Backup session to complete, then exit SAM when done.

End of Procedure



TimePictra Database Backup

There are three ways to HOT backup the TimePictra database:

- Allow the automated cron job to backup the database to tape every night at 12:00 am.
- Log in as `otroot`, then run the command `/opt/osmf/DB/admin/otdbbackup.ks` to back up the TimePictra database to tape, or `/opt/osmf/DB/admin/otdbbackup.ks -file dir_path` to back up the TimePictra database to files in the directory specified by `dir_path`. Refer to the `osmfdbbackup.doc` file included with the software in the `/opt/osmf/doc` directory for more information, or use the help provided as part of the `osmfadmin` utility.

Note: In order for the `otdbbackup.ks` utility to run successfully with the `-file` option, adequate free space must be available on the backup filesystem to receive the database information, and the directory path specified must already be created and be writable by the “otroot” user.

- Type the `osmfadmin` command, choose “Perform Online Database Backup” from the “Backups” menu, and choose the applicable sub-menu option. The “osmfadmin” utility allows interactive online database backups to tape (“Perform Online Database Backup to Tape”) as well as to a specified directory (“Perform Online Database Backup to Filesystem”).

In any case, the database backup utility produces an output, which is sent to a file in the `/tmp` directory with the file name “`backup.log.date`” where `date` is the date when the utility was run (for example, `backup.log.010114` if the utility ran on January 14, 2001). The following is an example of what the output file might look like:

```
Database backup started on Sun Jan 14 10:20:51 PST 2001
.....

List of data files copied as part of the hot backup:
.....
/opt/oradata/MV10/APPL01.DBF          891291648
/opt/oradata/MV10/APPL02.DBF          891291648
/opt/oradata/MV10/APPL03.DBF          891291648
/opt/oradata/MV10/APPL04.DBF          891291648
/opt/oradata/MV10/IND01.DBF           209717248
/opt/oradata/MV10/SYSTEM01.DBF        104859648
/opt/oradata/MV10/TEMP01.DBF          104859648
/opt/oradata/MV10/RBS01.DBF           52430848
/opt/oradata/MV10/TOOLS01.DBF         10487808

List of archive redo log files backed up along with their size
.....
/opt/oracle/app/oracle/admin/MV10/arch/MV0114.ARC 5388288

List of log files backed up along with their size
.....
/opt/oradata/MV10/MV10_01A.LOG        10486784
/opt/oradata/MV10/MV10_01B.LOG        10486784
```



```
.....
/opt/oradata/MV10/MV10_02A.LOG          10486784
/opt/oradata/MV10/MV10_02B.LOG          10486784
/opt/oradata/MV10/MV10_03A.LOG          10486784
/opt/oradata/MV10/MV10_03B.LOG          10486784
```

List of control files backed up along with their size

```
.....
/opt/oracle/app/oracle/admin/MV10/MV10_01.ctl      52224
/opt/oracle/app/oracle/admin/MV10/MV10_02.ctl      52224
/opt/oracle/app/oracle/admin/MV10/MV10_03.ctl      52224
```

```
Database backup completed successfully on Sun Jan 14 10:24:24 PST 2001
File filemark is 0 for /opt/oradata/MV10/APPL01.DBF
File filemark is 1 for /opt/oradata/MV10/APPL02.DBF
File filemark is 2 for /opt/oradata/MV10/APPL03.DBF
File filemark is 3 for /opt/oradata/MV10/APPL04.DBF
File filemark is 4 for /opt/oradata/MV10/IND01.DBF
File filemark is 5 for /opt/oradata/MV10/SYSTEM01.DBF
File filemark is 6 for /opt/oradata/MV10/TEMP01.DBF
File filemark is 7 for /opt/oradata/MV10/RBS01.DBF
File filemark is 8 for /opt/oradata/MV10/TOOLS01.DBF
File filemark is 9 for archived redo log files
File filemark is 10 for redo log files
File filemark is 11 for control files
File filemark is 12 for OpenView files
```

Note: The filemark information will appear in the output file even when the TimePictra database is backed up to a filesystem rather than a tape.

System Recovery

In the event of data loss, data can be recovered from the backup archives. Different levels of recovery might be necessary depending on the amount of data loss. Table F explains three recovery procedures and the type of data included in each procedure.

Table F. Recovery Procedures Overview

Procedure - Type of Data Included in the Recovery	Procedure Letter
<i>Complete System Recovery</i> - This procedure is used if the boot disk and the HP-UX Core System is replaced. A fully functional system is produced.	F
<i>Using SAM for Recovery</i> - This procedure restores applications or user files. Restoring with SAM is only necessary if the data restored in Complete System Recovery is not current. SAM allows restoration of changes since the last Complete System Recovery.	
<i>Restoring the TimePictra Database from Tape or Filesystem</i> - This procedure restores database files with the files that were backed up using the <code>otdbbackup.ks</code> script.	H

Complete System Recovery

Procedure F is used if the boot disk and the HP-UX Core System is replaced. The procedure makes use of the HP-UX Support CD and previously created backup tape.

4

Procedure F. Complete System Recovery

Step	Action
1	Replace the faulty drive and assure the new drive's SCSI address is set the same as the old drive. Refer to the manufacturer's hard drive documentation for setting the SCSI address. The default SCSI address for the boot disk on the TimePictra platform is "6."
2	Power the platform on, and then press the ESC key when the following message appears on the screen: <code>Processor is booting from first available device. To discontinue, press any key within 10 seconds.</code> <i>Note:</i> The above step initiates an attended boot:
3	Load the HP-UX Support CD in the CD-ROM drive.

Procedure F. Complete System Recovery (Cont'd)

Step	Action																		
4	<p>Type search:</p> <p>A list of all potential boot devices will be displayed, such as the following (your system might show different PATH information):</p> <table border="1"> <thead> <tr> <th>PATH Number</th> <th>Device Path</th> <th>Device Type</th> </tr> <tr> <th>-----</th> <th>-----</th> <th>-----</th> </tr> </thead> <tbody> <tr> <td>P0</td> <td>FWSCSI.6.0</td> <td>SEAGATE ST32430W</td> </tr> <tr> <td>P1</td> <td>FWSCSI.5.0</td> <td>SEAGATE ST32430W</td> </tr> <tr> <td>P2</td> <td>SESCSI.3.0</td> <td>HP C1533A</td> </tr> <tr> <td>P3</td> <td>SESCSI.2.0</td> <td>TOSHIBA CD-ROM XM-5401TA</td> </tr> </tbody> </table>	PATH Number	Device Path	Device Type	-----	-----	-----	P0	FWSCSI.6.0	SEAGATE ST32430W	P1	FWSCSI.5.0	SEAGATE ST32430W	P2	SESCSI.3.0	HP C1533A	P3	SESCSI.2.0	TOSHIBA CD-ROM XM-5401TA
PATH Number	Device Path	Device Type																	
-----	-----	-----																	
P0	FWSCSI.6.0	SEAGATE ST32430W																	
P1	FWSCSI.5.0	SEAGATE ST32430W																	
P2	SESCSI.3.0	HP C1533A																	
P3	SESCSI.2.0	TOSHIBA CD-ROM XM-5401TA																	
5	<p>Type boot <i>path_num</i></p> <p>Where <i>path_num</i> is the path number of CD-ROM device where the Support CD is loaded. For example, type boot P3 if the CD-ROM device is P3.</p>																		
6	Answer Y to the question Interact with IPL?																		
7	<p>Type ode copyutil at the ISL prompt.</p> <p>Note the legend of the "copyutil" output after it scans the system for devices:</p> <p>Ty - Device Type 'D' for Disk and 'T' for Tape. Indx - Index number used for referencing the device. Rev - Firmware Revision of the device. Size - Size of the Disk drive or "N/A" for a Tape drive.</p>																		
8	Type restore.																		
9	Enter the Disk Index number of the disk to be restored.																		
10	Enter the Tape Index number of the tape device to copy from.																		
11	<p>Load the Core System backup tape into the tape drive when prompted by the "copyutil" program.</p> <p>Note: Copyutil will check the type of disk drive to recover to. If the disk drive is different than what the backup was taken from, copyutil will ask if you want to continue. It is important that the size of the disk drive be the same as the drive the backup was taken from, and that there is enough space on the new disk to hold the data from the backup.</p>																		



Procedure F. Complete System Recovery (Cont'd)

Step	Action
12	<p>When ready, type <i>y</i> to continue.</p> <p>Copyutil will display the status of the recovery as follows:</p> <pre>10% completed20% completed30% completed40% completed50% completed60% completed70% completed80% completed90% completed100% completed Restored Successfully Please wait while I rewind the tape </pre>
13	<p>After the Restore process completes, the data has been restored onto the new disk drive. You can now exit the program and cycle the TimePictra platform's power off and then on. When the power is cycled, the system will boot from the new installed disk.</p> <p>If there were no major changes to the Operating System since the last "copyutil" backup was performed, then Procedure G can be bypassed. If any application or user files need to be recovered, perform Procedure G to recover them.</p> <p>Note: All application and user files are included on the HP-UX Core Backup. You might not need to restore any other system files once Procedure F is complete.</p>

End of Procedure

Using SAM for Recovery

Procedure G provides the example scenario where the directory named `/opt/oracle` is lost and must be recovered. Directory naming varies among systems, use the appropriate directory name when performing Procedure G.

Procedure G. Using SAM for Recovery

Step	Action
<i>Recover the /opt/oracle directory to the system.</i>	
1	Insert the correct backup tape in the tape drive.



Procedure G. Using SAM for Recovery (Cont'd)

Step	Action
2	Log in as root, then type the following command to start SAM: /usr/sbin/sam
3	Double click the "Backup and Recovery" icon.
4	Double click the "Interactive Backup and Recovery" icon.
5	Select "Recovery Files and Directories..." from the "Use Remote Backup Device" menu (the "Use Remote Backup Device" menu is part of the "Actions" menu).
6	In the "Recover Files and Directories" dialog box, click the "Select Recovery Scope..." button, then click "OK."
7	Include the following files under "Include Files:" /opt/oracle >Add
8	Click "OK."

Recover Database Files to Synchronize Oracle Files.

9	Perform Procedure H below, entitled Restoring the TimePictra Database from Tape or Filesystem. Refer to that procedure for information on recovering the TimePictra database. The TimePictra database is brought to the level of the otddbbackup.ks run from which the recovery is being done in that procedure.
---	--

Restart the Oracle Database.

10	Start the osmfadmin utility (type osmfadmin), then choose the following menu items in the order shown to re-start the Oracle database: <ul style="list-style-type: none">• Database Administration (from the osmfadmin main menu)• Startup Database (from the Database Administration menu) The system is now at the same point as when otddbbackup.ks was last run.
----	---

End of Procedure

Restoring the TimePictra Database from Tape or Filesystem

Procedure H restores the TimePictra database from a tape or filesystem with files that were backed up using the otddbbackup.ks script.

Caution: The Oracle database and HP OpenView must be shut down prior to performing the following steps. The following can be used to shut down the Oracle database and HP OpenView:

- Type the command *osmfadmin as oroot*.
- Choose the following *osmfadmin* menu items:

- Database Administration (from the *osmfadmin* main menu)
- Shutdown TimePictra Daemons (from the Database Administration menu)
- Shutdown Database (from the Database Administration menu)

The important point is that it is necessary for all Oracle processes to be shut down.

Procedure H. Restoring the TimePictra Database from Tape or Filesystem

Step	Action
1	If not logged into HP-UX as user root, log in as root, then enter the root password.
2	Ensure that the TimePictra environment is set by typing the following command: <pre>. /opt/osmf/config/env/osmf-db.env</pre> Note: The above command must be run from the Korn shell (ksh).
3	If the database is to be recovered from tape, insert the tape containing the files that you want to recover (the otddbbackup.ks tape) into the local tape drive (disregard this step if the database is to be recovered from a directory).

Procedure H. Restoring the TimePictra Database from Tape or Filesystem (Cont'd)

Step	Action
4	<p>Type either of the following commands as is appropriate to produce a listing of the files to be recovered:</p> <ul style="list-style-type: none">• <code>/opt/osmf/DB/admin/otdbrecover.ks -list</code> if recovering from tape• <code>/opt/osmf/DB/admin/otdbrecover.ks -list -file <i>dir_path</i></code> if recovering from the files in directory path <i>dir_path</i> <p>There should be several sets of files listed. For example, the listing returned should appear similar to, but not necessarily identical to, the following if recovering from tape:</p> <pre>Tape filemark is 0 for /opt/oradata/MV10/APPL01.DBF Tape filemark is 1 for /opt/oradata/MV10/APPL02.DBF Tape filemark is 2 for /opt/oradata/MV10/APPL03.DBF Tape filemark is 3 for /opt/oradata/MV10/APPL04.DBF Tape filemark is 4 for /opt/oradata/MV10/IND01.DBF Tape filemark is 5 for /opt/oradata/MV10/SYSTEM01.DBF Tape filemark is 6 for /opt/oradata/MV10/TEMP01.DBF Tape filemark is 7 for /opt/oradata/MV10/RBS01.DBF Tape filemark is 8 for /opt/oradata/MV10/TOOLS01.DBF Tape filemark is 9 for redo log files Tape filemark is 10 for archived redo log files Tape filemark is 11 for control files Tape filemark is 12 for OpenView files</pre> <p>Note: If recovering from a filesystem, the individual files to be recovered will be listed.</p> <p>If the listing verifies that the proper files are available, continue with the next step. If the listing indicates that the files are invalid, no listing is returned, or a message is returned indicating there is some other problem, troubleshoot the problem before continuing.</p>
5	<p>Type either of the following commands as is appropriate to recover the files:</p> <ul style="list-style-type: none">• <code>/opt/osmf/DB/admin/otdbrecover.ks -recover</code> if recovering from tape• <code>/opt/osmf/DB/admin/otdbrecover.ks -recover -file <i>dir_path</i></code> if recovering from the files in directory path <i>dir_path</i> <p>As each file is recovered, its name is displayed on the screen (refer to the example output following this procedure). When the recovery procedure is complete, the prompt returns to the screen.</p>



.....

Procedure H. Restoring the TimePictra Database from Tape or Filesystem (Cont'd)

Step	Action
6	<p>Start the osmfadmin utility (type osmfadmin), then choose the following menu items in the order shown to re-start the Oracle database:</p> <ul style="list-style-type: none">• Database Administration (from the osmfadmin main menu)• Startup Database (from the Database Administration menu) <p>The system is now at the same point as when otddbbackup.ks was last run.</p>

End of Procedure

Example "otdbrecover.ks -recover" Output

The following is an example of what the output might look like when recovering the TimePictra database from a filesystem:

```
User verified
```

```
WARNING:
```

```
#####  
You are about to recover TimePictra oracle database.  
If you have an existing TimePictra database and do not  
want to loose the data, DO NOT run ./otdbrecover.ks .  
This process will replace all TimePictra Oracle database  
related files. Shutdown all Oracle processes  
before attempting a recovery.
```

```
You must have the TimePictra otddbbackup tape or files in place.  
#####  
Do you wish to proceed with the recovery process?  
enter y or n
```

```
Y  
./otdbrecover.ks will proceed now  
Removing old Archive files  
Recovering files
```

```
WARNING
```

```
You about to overwrite files which could cause data loss  
Do you wish to continue? (y or n)
```

```
Y  
/opt/oradata/MV10/APPL01.DBF  
/opt/oradata/MV10/APPL02.DBF  
/opt/oradata/MV10/APPL03.DBF  
/opt/oradata/MV10/APPL04.DBF  
/opt/oradata/MV10/IND01.DBF  
/opt/oradata/MV10/SYSTEM01.DBF  
/opt/oradata/MV10/TEMP01.DBF  
/opt/oradata/MV10/RBS01.DBF  
/opt/oradata/MV10/TOOLS01.DBF  
/opt/oradata/MV10/MV10_01A.LOG  
/opt/oradata/MV10/MV10_01B.LOG  
/opt/oradata/MV10/MV10_02A.LOG  
/opt/oradata/MV10/MV10_02B.LOG  
/opt/oradata/MV10/MV10_03A.LOG  
/opt/oradata/MV10/MV10_03B.LOG  
/opt/oracle/app/oracle/admin/MV10/arch/MV1022.ARC  
/opt/oracle/app/oracle/admin/MV10/MV10_01ctl  
/opt/oracle/app/oracle/admin/MV10/MV10_02ctl  
/opt/oracle/app/oracle/admin/MV10/MV10_03ctl  
/var/opt/OV/share/databases/openview/defmap/defmap_db.pag  
/var/opt/OV/share/databases/openview/defmap/defmap_db.dir  
/var/opt/OV/share/databases/openview/mapdb/mapinfo.pag
```

```

/var/opt/OV/share/databases/openview/mapdb/mapinfo.dir
/var/opt/OV/share/databases/openview/mapdb/default/current/map.lock
/var/opt/OV/share/databases/openview/mapdb/default/current/
submapinfo.pag
/var/opt/OV/share/databases/openview/mapdb/default/current/
submapinfo.dir
/var/opt/OV/share/databases/openview/mapdb/default/current/
objinfo.pag
/var/opt/OV/share/databases/openview/mapdb/default/current/
objinfo.dir
/var/opt/OV/share/databases/openview/mapdb/default/current/
syminfo.pag
/var/opt/OV/share/databases/openview/mapdb/default/current/
syminfo.dir
/var/opt/OV/share/databases/openview/mapdb/default/snapinfo.pag
/var/opt/OV/share/databases/openview/mapdb/default/snapinfo.dir
/var/opt/OV/share/databases/openview/ovwdb/ovserver
/var/opt/OV/share/databases/openview/ovwdb/current/id_keeper.pag
/var/opt/OV/share/databases/openview/ovwdb/current/id_keeper.dir
/var/opt/OV/share/databases/openview/ovwdb/current/field_info.pag
/var/opt/OV/share/databases/openview/ovwdb/current/field_info.dir
/var/opt/OV/share/databases/openview/ovwdb/current/obj_info.pag
/var/opt/OV/share/databases/openview/ovwdb/current/obj_info.dir
/var/opt/OV/share/databases/openview/ovwdb/current/value_info.pag
/var/opt/OV/share/databases/openview/ovwdb/current/value_info.dir
/var/opt/OV/share/databases/openview/ovwdb/current/name_info.pag
/var/opt/OV/share/databases/openview/ovwdb/current/name_info.dir
/var/opt/OV/share/databases/openview/ovwdb/current/enum_info.pag
/var/opt/OV/share/databases/openview/ovwdb/current/enum_info.dir
6002989 blocks
Recovery passed

```

```

#####
Will now perform the final stage of recovery.
Performing Auto Recovery of Database :
#####

```

User and Group verified

```

WARNING:
#####
You are about to Perform an Auto Recovery for OSMF oracle database.
You should only run this script after osmfdbrecover has successfully
been run.
#####
Do you wish to proceed with Database Auto Recovery ?
enter y or n

```

```

y
/opt/osmf/DB/admin/auto_recovery.ks will proceed now
Performing Oracle Database Auto Recovery Process
Connected.
Database closed.
Database dismounted.

```

ORACLE instance shut down.

Database "MV10" shut down

LSNRCTL for HPUX: Version 9.0.1.0.0 - Production on 16-JUL-2002
15:39:09

Copyright (c) 1991, 2001, Oracle Corporation. All rights reserved.

Connecting to (ADDRESS=(PROTOCOL=TCP) (HOST=tpdev2) (PORT=6789))
The command completed successfully

LSNRCTL for HPUX: Version 9.0.1.0.0 - Production on 16-JUL-2002
15:39:09

Copyright (c) 1991, 2001, Oracle Corporation. All rights reserved.

Starting /opt/oracle/app/oracle/product/9.0.1/bin/tnslnsr: please
wait...

TNSLSNR for HPUX: Version 9.0.1.0.0 - Production
System parameter file is /opt/osmf/config/env/listener.ora
Log messages written to /opt/oracle/app/oracle/admin/MV10/bdump/
listener.log
Listening on:
(DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=tpdev2.symmetricom.com) (PORT=6789)))
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=ipc) (KEY=MV10)))

Connecting to (ADDRESS=(PROTOCOL=TCP) (HOST=tpdev2) (PORT=6789))
STATUS of the LISTENER

```
-----  
Alias                LISTENER  
Version              TNSLSNR for HPUX: Version 9.0.1.0.0 -  
Production  
Start Date           16-JUL-2002 15:39:09  
Uptime                0 days 0 hr. 0 min. 0 sec  
Trace Level          off  
Security              OFF  
SNMP                  OFF  
Listener Parameter File /opt/osmf/config/env/listener.ora  
Listener Log File    /opt/oracle/app/oracle/admin/MV10/bdump/  
listener.log  
Listening Endpoints Summary...
```

(DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=tpdev2.symmetricom.com) (PORT=6789)))

(DESCRIPTION=(ADDRESS=(PROTOCOL=ipc) (KEY=MV10)))

Services Summary...

Service "MV10" has 1 instance(s).

Instance "MV10", status UNKNOWN, has 1 handler(s) for this
service...

The command completed successfully

Listener started for MV10 database

.....

```
Connected to an idle instance.  
ORACLE instance started.  
Database mounted.  
Database opened.  
  
Database MV10 warm started.  
Oracle Database Auto Recovery Process Complete  
Log of Auto Recovery stored to /tmp/auto_recovery.log
```

Note: After recovery is complete, OpenView users will need to restart their client sessions to see the OV maps correctly.

Installation

The software is shipped on a CD-ROM that contains the current version of the software. The procedures in this chapter explain how to install or upgrade TimePictra.

Overview

The TimePictra 3.2 software is shipped on a CD-ROM. The CD-ROM contains the necessary files to install TimePictra 3.2 either as an initial installation, or as an upgrade to an existing TimePictra 3.0 or 3.1 installation.

This chapter contains the following sections:

- **Initial Installation:** Go to this section when TimePictra 3.2 is to be installed for the first time, and no TimePictra database currently exists.

Caution: If the procedures in the Initial Installation section are used to upgrade the software, the entire TimePictra database will be destroyed. When upgrading the software, go to the section entitled *Upgrading TimePictra*.

- **Upgrading TimePictra:** Go to this section when TimePictra 3.0 or 3.1 is currently installed, and is to be upgraded to TimePictra 3.2.
- **Removing TimePictra:** Go to this section when the TimePictra product and all relevant data is to be permanently uninstalled from the server.

Initial Installation

Caution: If the procedures in this section are used to upgrade the software, the entire TimePictra database will be destroyed. When upgrading the software, go to the section entitled *Upgrading TimePictra*.

Ensure that the hardware and software that the TimePictra system will be installed on meets minimum system requirements.

Refer to the section entitled *System Requirements* in the chapter entitled *Introduction and General Information* in this manual for a listing of the current hardware and software system requirements.

Prerequisites

- Oracle 9i (Database Standard Edition)
- Oracle 9i (Application Server Enterprise Edition)
- HP OpenView Network Node Manager release 6.2x (optional)
- Gateway machine name and IP address
- TimePictra CD
- June 2002 Quality Pack for HP-UX 11i (downloadable from the Internet)
- Java SDK 1.2.2.13 (downloadable from the Internet)

Note: All the characters in **BOLD** type are either UNIX commands to be executed, or are menu choices to be made or seen on the monitor.

Warning: **It is strongly recommended to read each installation step completely before executing it.**

Installing HP-UX 11i

Procedure I explains how to install HP-UX 11i.

Procedure I. Installing HP-UX 11i

Step	Action
1	Start the system with the HP-UX 11i Installation CD in the CD-ROM drive.

Procedure I. Installing HP-UX 11i (Cont'd)

Step	Action																																								
2	While booting up, press any key when the following message appears: Processor is booting from the first available device. To discontinue, press any key within 10 seconds.																																								
3	At the prompt, type search and press enter. This will make the system search all bootable devices.																																								
4	At the prompt, enter boot <path no for device which denotes CD ROM>; e.g., boot p0																																								
5	Say NO for Interact With IPL . The system will do some processing.																																								
6	The next menu displayed by the system will ask you to select the language to be installed (American English no 26). Enter the number for the corresponding language and press enter twice; first to enter the choice, and second to confirm the choice.																																								
7	A menu will pop up asking you the kind of operation you would like to do on the system. The following options will be listed: a. Install HP-UX b. Run a recovery shell c. Reboot d. Advanced options e. Help Select "install HP-UX" and press OK.																																								
8	In the resulting menu, User Interface and Media Option , select Advanced Installation and then Press OK .																																								
9	Under the subsequent menu option, select System Tab and enter the Hostname, IP Address, subnet mask, time, and root password . Then select Network Services option, and configure gateway for the default destination. After entering the Gateway IP address and hop count , select Add and hit enter . You may configure DNS if you wish, but it is not required.																																								
10	Select OK and hit enter to go back to the System tab .																																								
11	If DNS was not configured, a warning will be issued. Ignore this warning.																																								
12	Select the File System tab and hit enter. Configure the logical volumes as follows: <table border="0"> <thead> <tr> <th>a.</th> <th>Mount Dir:</th> <th>Usage:</th> <th>Size:</th> <th>Size Type:</th> </tr> </thead> <tbody> <tr> <td>b.</td> <td>/stand</td> <td>HFS</td> <td>300</td> <td>Fixed MB</td> </tr> <tr> <td>c.</td> <td>/</td> <td>VxFS</td> <td>200</td> <td>Fixed MB</td> </tr> <tr> <td>d.</td> <td>/tmp</td> <td>VxFS</td> <td>500</td> <td>Fixed MB</td> </tr> <tr> <td>e.</td> <td>/home</td> <td>VxFS</td> <td>300</td> <td>Fixed MB</td> </tr> <tr> <td>f.</td> <td>/opt</td> <td>VxFS</td> <td>21000</td> <td>Fixed MB</td> </tr> <tr> <td>g.</td> <td>/usr</td> <td>VxFS</td> <td>1644</td> <td>Fixed MB</td> </tr> <tr> <td>h.</td> <td>/var</td> <td>VxFS</td> <td>2000</td> <td>Fixed MB</td> </tr> </tbody> </table>	a.	Mount Dir:	Usage:	Size:	Size Type:	b.	/stand	HFS	300	Fixed MB	c.	/	VxFS	200	Fixed MB	d.	/tmp	VxFS	500	Fixed MB	e.	/home	VxFS	300	Fixed MB	f.	/opt	VxFS	21000	Fixed MB	g.	/usr	VxFS	1644	Fixed MB	h.	/var	VxFS	2000	Fixed MB
a.	Mount Dir:	Usage:	Size:	Size Type:																																					
b.	/stand	HFS	300	Fixed MB																																					
c.	/	VxFS	200	Fixed MB																																					
d.	/tmp	VxFS	500	Fixed MB																																					
e.	/home	VxFS	300	Fixed MB																																					
f.	/opt	VxFS	21000	Fixed MB																																					
g.	/usr	VxFS	1644	Fixed MB																																					
h.	/var	VxFS	2000	Fixed MB																																					
13	After altering the File System options, select "Go!" and hit enter, and you may be given a confirmation screen. If required, select "Go!" again and hit enter.																																								

Procedure I. Installing HP-UX 11i (Cont'd)

Step	Action
14	The OS installation will now start and will take some time to accomplish. The system will prompt the user to enter the second OS installation CD in the CD-ROM drive.
15	When the OS finishes installing, the machine will reboot a few times and you will again be asked to enter a number for your language. Enter the appropriate number for American English and hit enter.
16	After that, X-Windows should start. You will again be given a menu to choose your language. Click the "English" button.
17	On the next menu, you will be asked to confirm your language settings. An option is provided to specify unused languages for removal. If other languages will not be used, check the checkbox to remove unused languages.
18	In the Additional Language Selections menu, leave the defaults there and click next. On the summary screen, click Finish.
19	HP-UX 11i Operating System installation is now complete.
<i>End of Procedure</i>	

Installing June 2002 11i Quality Pack

Procedure J explains how to install the June 2002 11i Quality Pack.

Procedure J. Installing June 2002 11i Quality Pack

Step	Action
1	Download the June 2002 11i Quality Pack from the Hewlett-Packard Web site. To do this, go to www.hp.com and search for HP-UX Quality Pack.
2	Download the patch file onto the server.
3	Start a shell as user "root".
4	Start Unix software install procedure by entering the following command on the shell: <ol style="list-style-type: none">swinstallUnder the source depot path, enter the absolute path name where the patch depot was downloaded /<PATH TO DEPOT>/GOLDQPK11i.11.depotClick okSelect both the packs in the software selection window and click on action > Install.Once install analysis passes, click ok.Click yes to start patch installation.Click done when installation is done.

Procedure J. Installing June 2002 11i Quality Pack (Cont'd)

Step	Action
5	Reboot the machine after installation.

End of Procedure

UNIX Kernel Configuration

Use Procedure K to configure the UNIX kernel.

Procedure K. Configuring the UNIX Kernel

Step	Action
1	Open up a terminal with "root" as user.

Procedure K. Configuring the UNIX Kernel (Cont'd)

Step	Action																																																																																										
2	<p>Enter the following command at the prompt:</p> <ol style="list-style-type: none"> Sam (to start system administration manager). Over the GUI Option select Kernel Configuration. Then select Configurable Parameter. Edit the following parameters. The order may change based on your hardware. Simply follow the message boxes to set the kernel parameters that other kernel parameters rely on. <table border="1" data-bbox="337 573 1214 1556"> <thead> <tr> <th>Kernel Parameter</th> <th>New Value</th> <th>Default</th> </tr> </thead> <tbody> <tr><td>ksi_alloc_max</td><td>(NPROC * 8)</td><td>Default</td></tr> <tr><td>maxdsiz</td><td>1073741824 bytes</td><td></td></tr> <tr><td>maxdsiz_64</td><td>2147843648 bytes</td><td></td></tr> <tr><td>maxssiz</td><td>134217728</td><td></td></tr> <tr><td>maxssiz_64bit</td><td>1073741824</td><td></td></tr> <tr><td>maxswapchunks</td><td>(Available memory)/2</td><td></td></tr> <tr><td>maxuprc</td><td>(NPROC - 5) or maximum value</td><td></td></tr> <tr><td>msgseg</td><td>(NPROC * 4)</td><td></td></tr> <tr><td>msgmap</td><td>(MSGSEG + 2)</td><td></td></tr> <tr><td>msgmni</td><td>NPROC</td><td></td></tr> <tr><td>msgtbl</td><td>(MSGMAP - 2)</td><td></td></tr> <tr><td>ncallout</td><td>NKTHREAD</td><td></td></tr> <tr><td>ncsize</td><td>((8 * NPROC + 2048) + VX_NCSIZE)</td><td></td></tr> <tr><td>nfile</td><td>(15 * NPROC + 2048)</td><td></td></tr> <tr><td>nflocks</td><td>NPROC</td><td></td></tr> <tr><td>ninode</td><td>(8 * NPROC + 2048)</td><td></td></tr> <tr><td>nkthread</td><td>((NPROC * 7) / 4) + 16)</td><td></td></tr> <tr><td>nproc</td><td>4096</td><td></td></tr> <tr><td>semmap</td><td>((NPROC * 2) + 2)</td><td></td></tr> <tr><td>semmni</td><td>(NPROC * 2)</td><td></td></tr> <tr><td>semmns</td><td>(NPROC * 2)</td><td></td></tr> <tr><td>semmnu</td><td>(NPROC - 4)</td><td></td></tr> <tr><td>semvmx</td><td>32768</td><td></td></tr> <tr><td>shmmax</td><td>Available physical memory</td><td></td></tr> <tr><td>shmmni</td><td>512</td><td></td></tr> <tr><td>shmseg</td><td>32</td><td></td></tr> <tr><td>vps_ceiling</td><td>64</td><td></td></tr> <tr><td>maxfiles</td><td>2048</td><td></td></tr> <tr><td>maxfiles_lim</td><td>2048</td><td></td></tr> </tbody> </table> <p>Note: To change any of the parameters, do the following:</p> <ul style="list-style-type: none"> • Select the parameter to be changed. • Double click on it or Click on Action and then Modify Configurable Parameter. • In the field labeled Formula/Value, delete the old Formula/value with the new desired value. 	Kernel Parameter	New Value	Default	ksi_alloc_max	(NPROC * 8)	Default	maxdsiz	1073741824 bytes		maxdsiz_64	2147843648 bytes		maxssiz	134217728		maxssiz_64bit	1073741824		maxswapchunks	(Available memory)/2		maxuprc	(NPROC - 5) or maximum value		msgseg	(NPROC * 4)		msgmap	(MSGSEG + 2)		msgmni	NPROC		msgtbl	(MSGMAP - 2)		ncallout	NKTHREAD		ncsize	((8 * NPROC + 2048) + VX_NCSIZE)		nfile	(15 * NPROC + 2048)		nflocks	NPROC		ninode	(8 * NPROC + 2048)		nkthread	((NPROC * 7) / 4) + 16)		nproc	4096		semmap	((NPROC * 2) + 2)		semmni	(NPROC * 2)		semmns	(NPROC * 2)		semmnu	(NPROC - 4)		semvmx	32768		shmmax	Available physical memory		shmmni	512		shmseg	32		vps_ceiling	64		maxfiles	2048		maxfiles_lim	2048	
Kernel Parameter	New Value	Default																																																																																									
ksi_alloc_max	(NPROC * 8)	Default																																																																																									
maxdsiz	1073741824 bytes																																																																																										
maxdsiz_64	2147843648 bytes																																																																																										
maxssiz	134217728																																																																																										
maxssiz_64bit	1073741824																																																																																										
maxswapchunks	(Available memory)/2																																																																																										
maxuprc	(NPROC - 5) or maximum value																																																																																										
msgseg	(NPROC * 4)																																																																																										
msgmap	(MSGSEG + 2)																																																																																										
msgmni	NPROC																																																																																										
msgtbl	(MSGMAP - 2)																																																																																										
ncallout	NKTHREAD																																																																																										
ncsize	((8 * NPROC + 2048) + VX_NCSIZE)																																																																																										
nfile	(15 * NPROC + 2048)																																																																																										
nflocks	NPROC																																																																																										
ninode	(8 * NPROC + 2048)																																																																																										
nkthread	((NPROC * 7) / 4) + 16)																																																																																										
nproc	4096																																																																																										
semmap	((NPROC * 2) + 2)																																																																																										
semmni	(NPROC * 2)																																																																																										
semmns	(NPROC * 2)																																																																																										
semmnu	(NPROC - 4)																																																																																										
semvmx	32768																																																																																										
shmmax	Available physical memory																																																																																										
shmmni	512																																																																																										
shmseg	32																																																																																										
vps_ceiling	64																																																																																										
maxfiles	2048																																																																																										
maxfiles_lim	2048																																																																																										
3	On the main menu, click Action>Process New Kernel .																																																																																										

Procedure K. Configuring the UNIX Kernel (Cont'd)

Step	Action
4	On the GUI option Reboot the system , select Move Kernel Into Place and Shutdown/Reboot System Now , and Overwrite/stand/system . Press > ok . This will configure the new kernel and reboot the system.

End of Procedure

Installing Java SDK 1.2.2.13

Oracle requires that Java SDK be installed on the system. Use Procedure L to install Java SDK 1.2.2.13.

Procedure L. Installing Java SDK 1.2.2.13

Step	Action
1	Mount the CD-ROM with Java SDK depot on it.
2	Start a shell as user "root".
3	Start the Unix software install procedure by entering the following command on the shell: <ul style="list-style-type: none">a. swinstallb. Under the source depot path, enter the absolute path name where patch depot was downloaded /<PATH TO DEPOT>/sdk_12213os11.depotc. Click okd. Select both packs in the software selection window and click on action > Install.e. Once install analysis passes, click ok.f. Click yes to start patch installation.g. Click done when installation is done.

End of Procedure

Installing Oracle 9i Server

Use Procedure M to install Oracle 9i Server.

Procedure M. Installing Oracle 9i Server

Step	Action
1	<p>su - root (to login as user "root").</p> <p>Oracle recommends the following symbolic links be created in /usr/lib by the root user. Please issue the following commands as root:</p> <ul style="list-style-type: none">a. cd /usr/libb. ln -s /usr/lib/libX11.3 libX11.slc. ln -s /usr/lib/libXIE.2 libXIE.sld. ln -s /usr/lib/libXext.3 libXext.sle. ln -s /usr/lib/libXhp11.3 libXhp11.slf. ln -s /usr/lib/libXi.3 libXi.slg. ln -s /usr/lib/libXm.4 libXm.slh. ln -s /usr/lib/libXp.2 libXp.sli. ln -s /usr/lib/libXt.3 libXt.slj. ln -s /usr/lib/libXtst.2 libXtst.sl
2	<p>Create file pfs_fstab in directory /etc. If the file has been created before in any other installation, skip this step.</p> <ul style="list-style-type: none">a. vi /etc/pfs_fstab (to create a file to be used by PFS process to mount PFS format CD). Edit this file to contain the following entry: /dev/dsk/c1t2d0 /SD_CDROM pfs-rrip xlat=unix 0 0 <p><i>Note:</i> /dev/dsk/c1t2d0 is the special device file for the CD-ROM drive. If it is different on your system, make changes to the command accordingly. Ignore this file if it already exists with the entry.</p>
3	<p>The Oracle 9i uses PFS format CDs and requires the following procedure to mount:</p> <ul style="list-style-type: none">a. mkdir /SD_CDROMb. /usr/sbin/pfs_mountd &c. /usr/sbin/pfsd &d. chmod 775 /etc/pfs_fstab (to give read write permission to user "root".)e. /usr/sbin/pfs_mount /dev/dsk/c1t2d0 /SD_CDROM (to mount pfs format CD).

Procedure M. Installing Oracle 9i Server (Cont'd)

Step	Action
4	<p>Create a user called oracle, with group dba (create dba if it does not exist). This can be done with SAM as user root.</p> <ol style="list-style-type: none"> Type the following command to start System Administration Manager utility: Sam In SAM, double click on the Accounts for Users and Groups icon. Click on the Groups icon. Select Add from the Actions menu. Enter a group name of dba, and then click the Apply button. Click OK in the Group has been added to the system message box to dismiss it. Select Exit from the File menu. Double click on the Users icon. Select Add from the Actions menu. In the dialog box that appears, enter oracle for the Login Name. Click the Primary Group Name... button. Select dba from the list, and then click OK. Select /usr/bin/ksh as the Start-Up Program. Enter password and then confirm the password in the dialog box that appears. Click OK in the User oracle has been added to the system message box to dismiss it. Exit from SAM by clicking file & then exit till it goes off.
5	<p>To create a directory where the oracle file will reside, execute the following command:</p> <ol style="list-style-type: none"> mkdir /opt/oracle (Directory where oracle products will be installed). chown oracle:dba /opt/oracle (Passing on the ownership for directory to user "oracle"). chmod 775 /opt/oracle (Changing the access permission for the directory).
6	<p>Give the command xhost + `hostname` to allow the oracle user to bring up the installation screen.</p>
7	<p>Enter the following command at the prompt to set the environment for Oracle Database Server installation:</p> <ol style="list-style-type: none"> su - oracle export ORACLE_BASE=/opt/oracle/app/oracle export ORACLE_HOME=\$ORACLE_BASE/product/9.0.1 export ORACLE_TERM=hp export ORACLE_OWNER=oracle export DISPLAY=`hostname`:0.0 <p>Notes:</p> <ul style="list-style-type: none"> Where hostname is the name of the machine where user is running its shell from. Please check with your system administrator to know the TERM supported on the machine and set the value for ORACLE_TERM accordingly.

Procedure M. Installing Oracle 9i Server (Cont'd)

Step	Action
8	<p>/SD_CDROM/runInstaller (to start Oracle Database Server installation Utility). If an error is reported and installer is not able to start, the user might get a text file busy error. This is because an earlier attempt to install is holding up some files. Use the ps command to find the process.</p>
9	<p>Select the following options during installation on different GUI choices:</p> <ol style="list-style-type: none"> a. On the Welcome menu click Next. b. Specify the Inventory Location as <code>/opt/oracle/app/oracle/oralInventory</code> and click OK. c. Type dba into the UNIX Group Name field and click next. d. You will get a menu asking you to run a script as root. Open another terminal window and run the script, then click Continue on the menu. <ol style="list-style-type: none"> i. Start a shell as user root ii. Enter the following command at prompt: /tmp/orainstRoot.sh e. On the File Locations menu, leave the Source as default and make sure the Destination is /opt/oracle/app/oracle/product/9.0.1, then click Next. f. Select the Oracle9i Database radio button from the list of Available Products and click Next. g. Select the Standard Edition radio button on the Installation Type menu and click Next. h. On the Database Configuration menu, select the Software Only radio button and click Next. i. Enter /opt/java1.2 in the Choose JDK Home Directory menu and click Next. j. On the summary screen, click Install. This will start Oracle Database software installation. The user will be prompted to enter the other two Oracle Installation CDs. k. When prompted to insert the second CD, do the following as user root in a separate shell: <ol style="list-style-type: none"> i. pfs_umount /SD_CDROM ii. Take the first CD out of the drive. iii. Insert the second CD and enter the following command: pfs_mount /dev/dsk/c0t0d0 /SD_CDROM <p><i>Note:</i> <code>/dev/dsk/c1t2d0</code> is the special device file for the CD-ROM drive. If it is different on your system, then make changes to the command accordingly. Ignore this file if it already exists with the entry.</p> l. Once the second CD is mounted, hit ok on the disk location menu. m. When prompted to insert the third CD, do the following as user root in a separate shell: <ol style="list-style-type: none"> i. pfs_umount /SD_CDROM ii. Take the second CD out of the drive. iii. Insert the third CD and enter the following command: pfs_mount /dev/dsk/c0t0d0 /SD_CDROM <p><i>Note:</i> <code>/dev/dsk/c1t2d0</code> is the special device file for the CD-ROM drive. If it is different on your system, then make changes to the command accordingly. Ignore this file if it already exists with the entry.</p>

Procedure M. Installing Oracle 9i Server (Cont'd)

Step	Action
9 cont'd	<p>n. Once the third CD is mounted, hit ok on disk location menu.</p> <p>o. A dialog box appears containing a request that you run a script as the root user. Follow those instructions, then click OK to close the dialog box.</p> <p>p. Exit when completed.</p>
10	<p>Unmount the CD using the following command:</p> <p>/usr/sbin/pfs_umount /SD_CDROM</p>

End of Procedure

Installing Oracle 9i Application Server

Use Procedure N to install the Oracle 9i Application Server.

Procedure N. Installing Oracle 9i Application Server

Step	Action
1	su - root (To login as user "root").
2	<p>The Oracle 9i Application Server CD uses PFS format and requires the following procedure to mount:</p> <p>a. /usr/sbin/pfs_mountd & (if necessary)</p> <p>b. /usr/sbin/pfsd & (if necessary)</p> <p>c. /usr/sbin/pfs_mount /dev/dsk/c1t2d0 /SD_CDROM (To mount pfs format CD).</p>
3	<p>Enter the following command at prompt to set the environment:</p> <p>a. su - oracle</p> <p>b. export ORACLE_BASE=/opt/oracle/app/oracle</p> <p>c. export ORACLE_HOME=\$ORACLE_BASE/product/9iAS</p> <p>d. export ORACLE_TERM=hp</p> <p>e. export ORACLE_OWNER=oracle</p> <p>f. export DISPLAY=`hostname`:0.0</p> <p>g. export PATH= \$PATH:/bin:/usr/bin:/usr/sbin:/etc:/opt/bin:/usr/local/bin:\$ORACLE_HOME/bin</p> <p><i>Notes:</i></p> <ul style="list-style-type: none">• Where hostname is the name of the machine.• Please check with your system administrator to know the TERM supported on the machine and set the value for ORACLE_TERM accordingly.

Procedure N. Installing Oracle 9i Application Server (Cont'd)

Step	Action
4	<p>/SD_CDROM/runInstaller (To start the Oracle Application Server Installation Utility)</p> <p>Note: If you don't have the 500MB in the /tmp logical volume required by the installation, export the TMP variable to point to a directory in a logical volume that does. For example, "mkdir /opt/oracle/tmp; export TMP=/opt/oracle/tmp".</p>
5	<p>Select the following options during installation on different GUI choices:</p> <ol style="list-style-type: none">Click Next at the Installation Overview Screen. <p>Note: If you don't have enough space in /tmp as described in the note above, here is where you will get the error message.</p> <ol style="list-style-type: none">On the File Location menu option, make sure that destination is pointing to the ORACLE_HOME location and click NEXT.Select the Enterprise Edition radio button and click Next.Click Next at the Installation Overview Screen.Click Next at the Destination Oracle Home For 9.0.1 RSF-Based ... menu.In the Component Configuration and Startup menu, hold down the Ctrl key and select "Oracle9iAS Forms and Reports Services" and "Oracle HTTP Server in Non-SSL mode". Click Next.Click Next at both of the Apache Listener Configuration for Oracle9iAS... menus. No action is required here.Enter /opt/java1.2 as the JDK home in the Choose JDK Home Directory menu. Click next.Leave all "Wireless" related configuration windows blank and click Next for each one (there are three of them).Click Install on the Summary window. Swap CDs as prompted. You will have to unmount/mount next CD again.When done exit installer.
6	<p>A dialog box appears containing a request that you run a script as the root user. Follow those instructions, then click OK to close the dialog box.</p>
7	<p>Unmount the CD using the following command:</p> <pre>/usr/sbin/pfs_umount /SD_CDROM</pre>

End of Procedure

Installing Network Node Manager

Procedure O is used to install Network Node Manager.

Procedure O. Installing Network Node Manager

Step	Action
1	Insert the CD-ROM with the NNM Depot on it.
2	Login as user root (su - root).
3	mount /dev/dsk/c1t2d0 /SD_CDROM (To mount OpenView CD ROM under directory /SD_CDROM) <i>Note:</i> /dev/dsk/c1t2d0 is the special device file for the CD-ROM drive. If it is different on your system, then make changes to the command accordingly.
4	Installing NNM using install script: a. cd /SD_CDROM/ to move location where install script is present b. ./install to run the script that would start OpenView Installation script. i. Do you want to install Japanese language? Say NO . ii. Do you want to install manages? Say yes if you want to and no if you don't. iii. Do you want NNM to discover your network automatically after the installation? Say NO . iv. Do you want NNM user interface to be displayed after the installation? Say NO . v. Do you want to continue with this installation? Say yes . vi. Openview installation will now continue. This will take some time to finish. vii. Would you like to view release notes now: no. If the user wants to, he can say yes and go through them. <i>Note:</i> In case of reported error, go through the log file and do what is required.

End of Procedure

Installing TimePictra

Follow the steps in Procedure P when installing the TimePictra software.

Procedure P. Installing TimePictra

Step	Action
1	su - root (To login as user root).

Procedure P. Installing TimePictra (Cont'd)

Step	Action
2	The TimePictra CD uses PFS format and requires the following procedure to mount: <ol style="list-style-type: none"> /usr/sbin/pfs_mountd & (if necessary) /usr/sbin/pfsd & (if necessary) Create a file to be used by PFS process to mount the PFS format CD. Edit this file to contain the following entry: /dev/dsk/c1t2d0 /SD_CDROM pfs-rrip xlat=unix 0 0 (Where /dev/dsk/c1t2d0 is the special device file for the CD-ROM drive. If it is different on your system, then make changes to the command accordingly). Give read write permission to user "root". /usr/sbin/pfs_mount /SD_CDROM (To mount pfs format CD).
3	swinstall (To run the Unix Software Installer)
4	On the Specify Source menu option, select Local CD ROM . For Source Depot Type , enter the full path for the location on the CD-ROM where TimePictra installation depot is present. Press >OK .
5	Under the Source Depot Path , enter /<cd_mount_directory>/DEPOT and press ok .
6	Select TimePictra 3.2 from the list that pops up.
7	Action>Install analysis.
8	If analysis goes through successfully, click on Done to start TimePictra installation.
9	Yes> to proceed with installation.

End of Procedure

TimePictra Database Creation

Follow the steps in Procedure Q to create the TimePictra database.

Procedure Q. Creating the TimePictra Database

Step	Action
1	su - otroot (To login as user "otroot")
2	<ol style="list-style-type: none"> Type osmfadmin to start the TimePictra Administration Utility. Select option 3, Database Administration. Select option 5, Create new database. Type y and press enter. Verify directories and type y before pressing enter.
3	Select the number of network elements the database will need to store information about and press enter (options 1, 2, or 3).

Procedure Q. Creating the TimePictra Database (Cont'd)

Step	Action
<i>End of Procedure</i>	

Configuring Web Services

The user is now required to edit the Apache Web Server configuration file used by TimePictra. Procedure R explains how to configure the Apache Web Server.

Procedure R. Configuring the Apache Web Server

Step	Action
1	<p>Execute the following command to open the file for editing:</p> <ol style="list-style-type: none"> vi /opt/oracle/config/env/httpd.conf Search for two lines beginning with ServerAdmin and ServerName. Change the e-mail address after the ServerAdmin directive to the valid e-mail address of this machine's administrator. Change the word "localhost" after the ServerName directive to either the hostname (tp3 for example) or the fully qualified domain name (tp3.symmetricom.com for example). Make sure that what you choose as the ServerName can be resolved via DNS.
2	<p>The installation of Oracle 9iAS started a few processes as the user oracle. These processes need to be brought down now. As root, give the commands:</p> <ol style="list-style-type: none"> su - oracle ./opt/osmf/config/env/osmf_http.env \$ORACLE_HOME/bin/f60ctl stop port=9001 \$ORACLE_HOME/.. /Apache/Apache/bin/apachectl stop ps -ef grep rwmnts60 grep oracle while read a b c; do kill -9 \$b ; done; <p><i>Note:</i> Kill is used as Oracle does not include a script to bring this process down gracefully.</p>
3	<p>Next, modify the permissions of a few directories so that oroot has permission to write to them. To do this, give the following commands:</p> <ol style="list-style-type: none"> chmod 775 \$ORACLE_HOME/guicommon6/tk60/admin/uiprint.txt chmod -R 775 \$ORACLE_HOME/.. /Apache/Apache/logs chmod 775 \$ORACLE_HOME/.. /Apache/Jserv/logs/jserv.log chmod -R 775 \$ORACLE_HOME/reports60/server

Procedure R. Configuring the Apache Web Server (Cont'd)

Step	Action
4	<p>Configure Print Services:</p> <ol style="list-style-type: none"> Edit the file \$ORACLE_HOME/guicommon6/tk60/admin/uiprint.txt to point to a system printer. Instructions are in the file. Edit the file /opt/osmf/config/env/osmf_http.env and change the text "my printer" to a valid system printer in the variables TK2_PRINTER and TK2_PRINT, and uncomment them.
5	<ol style="list-style-type: none"> Change users to root (su -). Give the command xhost +`localhost`.
6	<ol style="list-style-type: none"> Switch users to ootroot (su - ootroot). Use the osmfadmin utility to bring up all TimePictra and Web processes. Type 'osmfadmin'. Choose option 4, Web Server Administration. Choose option 1, Startup Web Server. <p><i>Note:</i> Open a Web browser on a Windows system and point it to: <a href="http://<your_server_name>:8080">http://<your_server_name>:8080. You should see the TimePictra main page. Click the Launch TimePictra 3.2 button to start your client session. You will need to download and install the Jinitiator plugin the first time you do this. You should see the Oracle Jinitiator interface and TimePictra login prompt. Type secw as the username and password initially, and the Launch Pad should appear.</p>

End of Procedure

Installing Oracle 9iAS/6iserver Patch 9

Procedure S is used to install Oracle 9iAS/6iserver patch 9.

Procedure S. Installing Oracle 9iAS/6iserver Patch 9

Step	Action
<p>Before proceeding further, contact Oracle and obtain patch 9 from them. If you have installed this patch before and do not need instructions, the last known working URL for downloading the patch via FTP is:</p> <p>ftp://oracle-ftp.oracle.com/dev_tools/patchsets/dev2k/HPUX/6i/patch9/p2211449_600_HPUX11.zip</p>	
1	<ol style="list-style-type: none"> As user ootroot, stop the Web processes using the osmfadmin utility. Type osmfadmin, option 4, then option 2.
2	<p>Login as user oracle (su - oracle), then, source the TP Web environment:</p> <p>./opt/osmf/config/env/osmf-http.env</p>

Procedure S. Installing Oracle 9iAS/6iserver Patch 9 (Cont'd)

Step	Action
3	Copy the p2211449_600_HPUX11.zip file to your \$ORACLE_HOME/6iserver directory and uncompress it.
4	Shut down all processes that may be using the Oracle files you are about to patch.
5	Change directories to the patch directory that you have just expanded (this directory should be called developer6i_patch9) and run the file called patch_install.sh.
6	After the patch has finished installing, Oracle requires you to recompile a few binaries related to the files that were just replaced. To do this, give the following commands: make -f \$ORACLE_HOME/forms60/lib/ins_forms60w.mk install make -f \$ORACLE_HOME/graphics60/lib/ins_graphics60w.mk install make -f \$ORACLE_HOME/procbuilder60/lib/ins_procbuilder.mk install cd \$ORACLE_HOME/reports60/lib make -f ins_reports60w.mk install
7	Patch installation is now complete. If you need more detail or are having some situation-specific issues, contact Oracle and ask for the latest, most up-to-date installation procedure for this patch.

End of Procedure

Create and Configure TimePictra User

Follow the steps in Procedure T to create and configure a TimePictra user.

Procedure T. Creating and Configuring TimePictra Users

Step	Action
------	--------

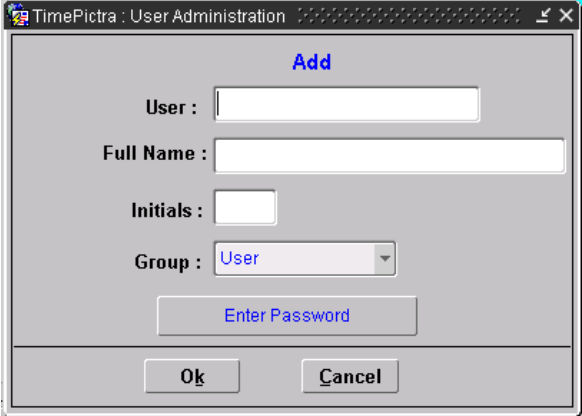
Create User at TimePictra Database Level

For a user to start a Launch Pad (Web interface of TimePictra) session, the following procedure needs to be performed. Users of the Security class can perform this procedure.

Notes:

- In an initial installation, a user by the name of sec (belonging to security class) is automatically created in the TimePictra database. This user can log in to TimePictra from Launch Pad by using a User Name of SECW and a password of SECW. For this user to start an Openview Synchronization Map Session, a Unix user of the same name needs to be defined on the TimePictra Server (refer to the procedure entitled Create Unix User on the TimePictra Server).
- Any user created in the TimePictra database would have to use W at the end of his user name when logging in to TimePictra from Launch Pad.
- For a user to start a Web session, also called Launch Pad, the user needs to be defined at the TimePictra Database level only.

Procedure T. Creating and Configuring TimePictra Users (Cont'd)

Step	Action
1	<p>Invoke the User Administration dialog box:</p> <p><i>Synchronization Map</i> - Click the User Administration option from the Security menu. The Security menu item is part of the TimePictra menu.</p> <p><i>Launch Pad</i> - Click the User Admin... shortcut icon, or choose <u>U</u>ser Admin... from the <u>S</u>ecurity menu.</p> <p>The User Administration dialog box contains a listing of the current TimePictra users in the user list area. When first invoked, the username of the security-class user currently logged on is selected in the user list area.</p>
2	<p>Click the Add button to invoke the "Add" User Administration dialog box, which appears similar to the following figure:</p> 
3	<p>Enter the information shown in User Information Table (in the User Guide) into the User, Full Name, Initials, and Group fields.</p>
4	<p>Click the Enter Password button to invoke the Password Window dialog box, enter password information into the fields in that dialog box as explained in Table (in the User Guide), then click the OK button.</p>
5	<p>Click OK in the message box that reads <code>User user_name created successfully</code> (where <code>user_name</code> is the name of the user just created).</p>
6	<p>To close the User Administration dialog box, click the Close button, then click Yes when the question <code>Do you want to exit from User Administration?</code> appears.</p>
7	<p>Continue to the next section of this procedure only if it is necessary to create a Unix user on a TimePictra server. Otherwise, continue to Procedure U.</p>

Create Unix User on the TimePictra Server

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

8	Start a shell with user root.
---	-------------------------------

Procedure T. Creating and Configuring TimePictra Users (Cont'd)

Step	Action
9	Enter the following command at # prompt to start a session for the System Administration Manager utility: sam
10	In the following menu option select Accounts for Users And Groups .
11	In the subsequent menu option select Users .
12	In the subsequent menu option click on Action from the main menu and select ADD...
13	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.)
14	Enter the password for the user and then confirm it to complete the creation process.
15	Exit out of sam.
16	Start a shell for this new user created in the previous step.
17	Edit the .profile file for the user, using vi editor. And add the following line to source the environment to start TimePictra session: if [-r /opt/osmf/config/env/osmf-http.env]; then ./opt/osmf/config/env/osmf-http.env fi export DISPLAY=<hostname>:0.0

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

End of Procedure

Verify the Installation

Follow the steps in Procedure U to verify the TimePictra installation.

Procedure U. Verifying the Installation

Step	Action
1	Type the following command to log on as user "otroot:" su - otroot
2	Type the following command to source the TimePictra HTTP environment: . /opt/osmf/config/env/osmf-http.env <i>Note:</i> The above command must be run from the Korn shell (ksh).
3	Type the following command to start the osmfadmin utility: osmfadmin <i>Note:</i> The above command must be run from the Korn shell (ksh).
4	Type the following menu items, in the order shown, to start the Oracle database (enter the number next to the menu item). <ul style="list-style-type: none">• Database Administration (from the osmfadmin main menu)• Startup Database (from the Database Administration menu)
5	Type the following menu item to start the TimePictra daemons. <ul style="list-style-type: none">• Startup TimePictra Daemons(from the Database Administration menu)
6	Type the following menu items, in the order shown, to start the Oracle Web Server. <ul style="list-style-type: none">• Web Server Administration (from the osmfadmin main menu)• Startup Web Server (from the Web Server Administration menu)
7	Type the following menu item to check the status of the Web Server. <ul style="list-style-type: none">• Show Status of Web Server (from the Web Server Administration menu) <p>The information that is returned should suggest that all processes are UP.</p>
8	Type the following menu item to check the status of the TimePictra daemons, and perform a system health check. <ul style="list-style-type: none">• Status (from the osmfadmin main menu) <p>The information that is returned should suggest that all processes are UP.</p>

Procedure U. Verifying the Installation (Cont'd)

Step	Action
9	Enter the following command to start HP OpenView session: tpstart
10	Start the Web browser, then enter the following URL into the browser's location field: <code>http://site_name:8080</code> Where <i>site_name</i> is the name that was entered in Step 1 of Procedure R. If the TimePictra and related software was installed properly, the TimePictra Web session main page will appear.
<i>End of Procedure</i>	

Upgrading TimePictra

Follow the steps in Procedure V to upgrade from TimePictra 3.0 to 3.1.

Procedure V. Upgrading TimePictra

Step	Action
1	Insert the TimePictra 3.2 CD into the CD-ROM drive.
2	Ensure that all TimePictra-related processes are down. To do this, run the <code>osmfadmin</code> utility and choose the appropriate options to shut all TimePictra-related processes down. <i>Note:</i> Only user <code>otroot</code> can use the <code>osmfadmin</code> utility.
3	Log in as user <code>root</code> on the machine that contains the TimePictra installation to be upgraded.
4	The TimePictra 3.2 CD uses PFS format and requires the following procedure to mount: a. <code>/usr/sbin/pfs_mountd &</code> (if necessary) b. <code>/usr/sbin/pfsd &</code> (if necessary) c. Create a file to be used by PFS process to mount the PFS format CD. Edit this file to contain the following entry: <code>/dev/dsk/c1t2d0 /SD_CDROM pfs-rrip xlat=unix 0 0</code> (Where <code>/dev/dsk/c1t2d0</code> is the special device file for the CD-ROM drive. If it is different on your system, then make changes to the command accordingly). d. Give read write permission to user "root". e. <code>/usr/sbin/pfs_mount /SD_CDROM</code> (To mount pfs format CD).
5	Type the following command to run the software installer: swinstall
6	On the Specify Source menu option, select Local CD ROM .
7	Under the Source Depot Path , enter <code><cd_mount_directory>/DEPOT</code> and press ok .
8	Select TimePictra 3.2 Update from the list that pops up.
9	Action>Install analysis.
10	If analysis goes through successfully, click on Done to start the TimePictra upgrade.
11	Yes> to proceed with upgrade.
12	The database will be brought up and upgraded with new enhancements in the update. This might take a few minutes. When it is finished, bring all of the TimePictra-related processes back up as user <code>otroot</code> using the <code>osmfadmin</code> utility. <i>Note:</i> The logfile, which is available by pressing the Logfile... button in <code>swinstall</code> while the upgrade is in progress, gives you further information about the details of the product update.

End of Procedure

Removing TimePictra

This is a destructive procedure and users must be very careful, as it removes the product and all relevant data. This procedure should be followed as part of a migration process only. Please be sure to backup the database before proceeding with this procedure (refer to the Database Backup and Recovery section in this manual).

Uninstalling TimePictra

The TimePictra uninstall procedure is performed using "swremove." The "otroot" user must not be logged into the system and no "otroot" process should be running when the procedure is performed. Thus both TimePictra and related Oracle processes should be down.

Use the osmfadmin script to shutdown TimePictra and the related Oracle processes, by making the following selections:

Note: User otroot user can execute the osmfadmin script.

- Web Server Administration
- Shut Down Web Server
- Database administration
- Shutdown TimePictra Daemons
- Shutdown database.

The following command can be used to determine if any "otroot" processes are currently running:

```
ps -u otroot
```

Procedure W lists the steps required to uninstall the TimePictra software.

5

Procedure W. Uninstalling TimePictra Software

Step	Action
1	Start a shell with user as "root". Execute the following: su - root (to login as user root)
2	Start Unix uninstaller by the executing following command at the prompt: /usr/sbin/swremove (this displays the list of all the products installed on the server)
3	On the GUI that comes up select TimePictra and click on Action > remove analysis .

.....

Procedure W. Uninstalling TimePictra Software (Cont'd)

Step	Action
4	If analysis goes through successfully, click on Done to start TimePictra removal. Click Yes > to proceed with removal. If remove analysis fails, go through the logfile and take corrective actions.
5	Once TimePictra is removed execute the following command to remove the Oracle Database: rm -r /opt/oradata <i>Note:</i> Take care to enter the pathname correctly.

End of Procedure

.....

This page intentionally left blank.

Commissioning an NE

This chapter explains configuring an NE to communicate with TimePictra.

Configure NEs to Communicate with TimePictra

Before any NE can be managed by the software, some basic configuration is required on behalf of the system administrator. Since the software cannot communicate with the NE at this point, this configuration must be performed via an alternate interface. Most of the parameters can be set using TL1 commands or via the local craft terminal. Some switch settings may need to be set.

Notes:

1. Modifications of some network parameters using TL1 commands require a sequence be followed that is different than other parameters, to avoid inadvertent changes.
2. Refer to the *NE Programming Manual* for information on creating the new user and setting the switches.

Follow the steps in Procedure X to configure TimeHub to communicate with TimePictra.

Procedure X. Configure TimeHub to Communicate with TimePictra

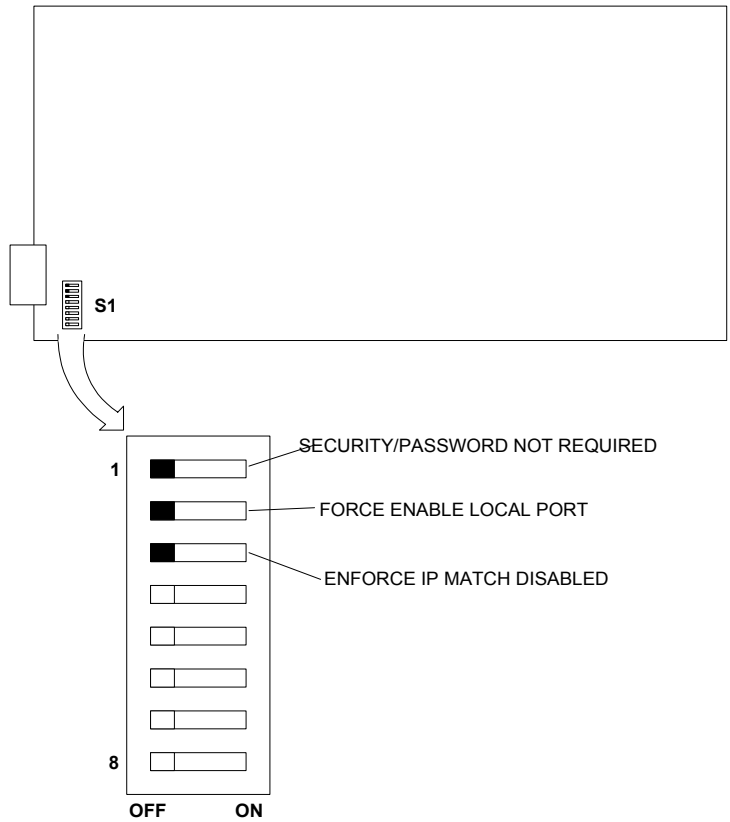
Step	Action
<i>Note: The following steps suggest the order in which the NE configuration should be performed. For details on how to modify particular parameters, refer to the documentation supplied with the interface used (TL1 commands or local craft terminal).</i>	
1	Ensure that the Security/Password Not Required switch (bit 1 of switch S1 on the NIMC assembly) and the Force Enable Local Port switch (bit 2 of switch S1 on the NIMC assembly) is set to Off. <i>Note: Refer to Figure 5 for switch locations.</i>
2	Connect to the IMC card using local port and create a user with name svsec and a security level of SECURITY with a password of up to ten characters. The password must contain at least one special character (such as a period, asterisk, ampersand, or percent) and at least one non-alphabetical character. (The related TL1 commands are ED-USER-SECU (edit user security) and ENT-USER-SECU (enter user security).) Username and password will later be used when managing the NE.
3	Verify that Remote Automatic Output is set to ALWAYS (the related TL1 keyword is RMTAO). RMTAO determines the conditions under which automatic output messages are reported to the remote port.
4	Note the value for SCRAMBLE. This would be used at a time of manage operation (the related TL1 keyword is AOMERGE).

Procedure X. Configure TimeHub to Communicate with TimePictra (Cont'd)

Step	Action
5	<p>Set the following network parameters:</p> <ul style="list-style-type: none"> a. NE IP Address - Change this to the IP address for the NE being configured (the related TL1 keywords are IPNE (for working memory)). b. TimePictra Host IP Address - Change this to the IP address for the host on which the software is running (the related TL1 keywords are IPEM1). c. Replication System IP Address (if necessary) - Change this to the IP address for the TimePictra software replication system, if one is installed (the related TL1 keywords are IPEM2 (for working memory)). <p><i>Note:</i> If the replication option is not installed, the Replication System IP Address (IPEM2) value should be left to 0.0.0.01, which is its default value.</p> <ul style="list-style-type: none"> d. Gateway Address - Change this to the IP address of the default gateway (The related TL1 keywords are IPGATE (for working memory)). e. Sub-Network Address - Change this to the IP address of the sub-network mask (the related TL1 keywords are IPSUBNET (for working memory)). <p><i>Note:</i> The following network parameters do not need to be changed from their default values to support TimePictra software operation: Local Manager 1 Address (IPLM1), Local Manager 2 Address (IPLM2), Command Port (PORTCMDS), Auto Output Port (PORTAO), and Inactivity Time (INACTTIME).</p>
6	<p>Set the time and date at the NE (The ED-DAT TL1 command can be used to set the time and date).</p>
7	<p>Set Security/Password Not Required switch and Force Enable Local Port switch (bits 1 and 2 of switch S1 on the NIMC assembly) to On.</p> <p><i>Note:</i> The NE is now configured to communicate with the software. It can now be added to a synchronization map. When managing the NE for the first time, enter its IP Address and Password. The IP address to use is the one specified in step 5-a of the above procedure, and the Password is the one specified in Step 2.</p>
<p><i>End of Procedure</i></p>	

Figure 5 is referenced from within Procedure X.

Figure 5. NIMC Assembly Switch Locations



Follow the steps in Procedure Y to configure TimeSource 3X00 to communicate with TimePictra.

Procedure Y. Configure TimeSource 3X00 to Communicate with TimePictra

Step	Action
1	<p>The user needs to set the following parameters at the box level using a local communication port, using the ED-EQPT TL1 command:</p> <ul style="list-style-type: none">• IP Address (TL1 Parameter IPNE)• Subnet Mask (TL1 Parameter IPSUBNET)• Gateway (TL1 Parameter IPGATE)• Primary Element Manager (TL1 Parameter IPEM1)• Port Address of Primary Element Manager (TL1 Parameter IPEM1PORT) should be set to 7589 OR use the ED-COM TL1 command to set parameter COMPRI to ALW1. <p>The default communication ports are 5001/5002/5003/5004. The user is also required to enter either of these ports along with the IP address of NE during manage operation.</p> <p><i>Note:</i> Take this procedure as an example; refer to the hardware manual for exact configuration commands.</p>

End of Procedure

Follow the steps in Procedure Z to configure DCD 5.01.05 to communicate with TimePictra.

Procedure Z. Configure DCD 5.01.05 to Communicate with TimePictra

Step	Action
1	<p>Before managing a DCD 5.01.05, the user needs to configure the MIS card and load all of the configuration information on it. The following commands must be sent after establishing a connection with the NE:</p> <ul style="list-style-type: none"> a. INIT-SYS::MIS:Ctag::9; b. RTRV-COM::COM-ALL:Ctag; c. SET-SID::Ctag::<sid>; user gives <sid> that identifies the system. d. ED-DAT::Ctag::<yyyy-mm-dd,hh-mm-ss>; To set date & time e. ENT-EQPT::GTI-1:Ctag::D4,INH,,RB,RB,1; NEW user_input f. RST-EQPT::GTI-1:Ctag; g. ENT-EQPT::CLK-1:Ctag; h. RST-EQPT::CLK-1:Ctag; i. ENT-EQPT::CLK-2:Ctag; j. RST-EQPT::CLK-2:Ctag; k. ENT-EQPT::MRC-1:Ctag; l. SET-ATTR-PORT::MRC-1-ALL:Ctag::MN,ALL; m. ED-PORT::MRC-1-1:Ctag::D4,1,GPS,DIGITAL; n. ENT-EQPT::MRC-2:Ctag; o. SET-ATTR-PORT::MRC-2-ALL:Ctag::MN,ALL; p. ED-PORT::MRC-2-1:Ctag::D4,1,GPS,DIGITAL; q. ENT-EQPT::PSM-x:Ctag; Value of X depend on the Hardware configuration of the NE. r. SET-ATTR-PORT::PSM-x-ALL:Ctag::NA,ALL; Value of X depend on the Hardware configuration of the NE. s. RMV-PORT::PSM-x-p:Ctag; Value of X depend on the Hardware configuration of the NE. t. INIT-REG::PSM-x-ALL:Ctag::ALL; u. ENT-EQPT::TO-x:Ctag; Value of X depend on the Hardware configuration of the NE. v. ED-EQPT::TO-x:Ctag::D4,INH,MN,,; Value of X depend on the Hardware configuration of the NE. w. SET-ATTR-CONT::SHELF:Ctag::NRVRT; x. RTRV-CONDEQPT::ALL:Ctag; y. RTRV-ALM-ALL::ALL:Ctag;
2	<p>Once the MIS card has been configured properly, connect DCD 5.01.05 to a configured terminal server on any of its communication ports. Please refer to the procedure "Configure Terminal Server to Communicate with NE" to configure the terminal server.</p>
3	<p>On DCD 5.01.05, configure the communication port (COM-1, 2, or 3) to which the terminal server is connected to report alarms and events. This can be done using the EDIT COMMUNICATION command; the respective keyword is REPTALM (this should be set to ALW1).</p> <p><i>Note:</i> Take this procedure as an example; refer to the hardware manual for exact configuration commands.</p>

End of Procedure

Follow the steps in Procedure AA to configure DCD 5.04.02 to communicate with TimePictra.

Procedure AA. Configure DCD 5.04.02 to Communicate with TimePictra

Step	Action
1	Once the MIS card has been configured properly, connect DCD 5.04.02 to a configured terminal server on any of its communication ports. Please refer to the procedure "Configure Terminal Server to Communicate with NE" to configure the terminal server.
2	On DCD 5.04.02, configure the communication port (COM-1, 2, or 3) to which the terminal server is connected to report alarms and events. This can be done using the EDIT COMMUNICATION command; the respective keyword is COMPRI (this should be set to ALW1). <i>Note:</i> Take this procedure as an example; refer to the hardware manual for exact configuration commands.

End of Procedure

Follow the steps in Procedure AB to configure the PRR10 to communicate with TimePictra.

Procedure AB. Configure the PRR10 to Communicate with TimePictra

Step	Action
1	Refer to the hardware manual and use a configured terminal server on any of its communication ports. Please refer to the procedure "Configure Terminal Server to Communicate with NE" to configure a terminal server.
2	For the PRR10, in addition to the general network settings, the unit must also be configured to operate in TL1 mode. Logging onto the unit and giving the command, "comm mode tl1" will accomplish this. Hitting the ; key a few times should verify that the box is indeed in TL1 mode. Each ; should generate a TL1 response. <i>Note:</i> Take this procedure as an example; refer to the hardware manual for exact configuration commands.

End of Procedure

Follow the steps in Procedure AC to configure TSG3000 firmware versions D/E to communicate with TimePictra.

Procedure AC. Configure TSG3000 Firmware Versions D/E to Communicate with TimePictra

Step	Action
1	Refer to the hardware manual and use a configured terminal server on any of its communication ports. Please refer to the procedure "Configure Terminal Server to Communicate with NE" to configure a terminal server.
2	For the TSG3800D/E, in addition to the general network settings, the unit must also be configured to operate in TL1 mode. Logging onto the unit and giving the command, "comm mode tl1" will accomplish this. Hitting the ; key a few times should verify that the box is indeed in TL1 mode. Each ; should generate a TL1 response. <i>Note:</i> Take this procedure as an example; refer to the hardware manual for exact configuration commands.

End of Procedure

Follow the steps in Procedure AD to configure a terminal server to communicate with NE.

Procedure AD. Configure Terminal Server to Communicate with NE

Step	Action
1	The user needs to set the following parameters on the terminal server connected to the local communication port via some serial communication software (e.g. Hyperterminal). <ul style="list-style-type: none">• IP Address• Subnet Mask• Gateway• User needs to configure the Local Port and make sure that the communication speed (BAUD Rate) matches with the NE.• Once all the basic communication parameter are set on the Terminal Server, enable Remote Access capability.
2	<i>Notes:</i> <ol style="list-style-type: none">1. NE's without an ethernet connection can use a terminal server to communicate via TCP/IP with TimePictra.2. Take this procedure as an example; refer to the hardware manual for exact configuration commands.

End of Procedure