Oracle® Communications
Tekelec Platform

Operations, Administration, and Maintenance (OAM) User's Guide

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Oracle Communications Tekelec Platform Operations, Administration, and Maintenance (OAM) User's

Guide, Release 6.0

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Chapter 1

Introduction

Topics:

This section contains a brief description of the Operations, Administration, and Maintenance (OAM) feature. The contents include sections about the manual scope, audience, and organization; how to find related publications; and how to contact Customer Support for assistance.

Overview

This documentation:

- Gives a conceptual overview of the application's purpose, architecture, and functionality
- Describes the pages and fields on the application GUI (Graphical User Interface)
- Provides procedures for using the application interface
- Explains the organization of, and how to use, the documentation

Scope and Audience

This manual is intended for anyone responsible for configuring and administering the Operations, Administration, and Maintenance options. Users of this manual must have a working knowledge of telecommunications and network installations.

Manual Organization

This document is organized into the following chapters:

- *Administration* contains information about the administration of users, passwords, groups, sessions, and other OAM functions.
- *Configuration* contains information about the configuration of network elements, services, resource domains, servers, server groups, places, place associations and networks on the OAM.
- *Alarms and Events* contains information about viewing, exporting and generating reports on active and historical alarms and events in OAM.
- *Security Log* contains information on the security log files included with OAM.
- *Status and Manage* contains information on the status and management of network elements, servers, high availablility servers, databases, KPIs, processes, tasks, and files on the OAM.
- *Measurements* contains information on the measurement elements on the OAM.

Documentation Admonishments

Admonishments are icons and text throughout this manual that alert the reader to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage.

Table 1: Admonishments

	**DANGER**: (This icon and text indicate the possibility of *personal injury*.)

	WARNING: (This icon and text indicate the possibility of equipment damage.)
	CAUTION: (This icon and text indicate the possibility of service interruption.)

Related Specifications

For information about additional publications that are related to this document, refer to the Oracle Help Center site. See *Locate Product Documentation on the Oracle Help Center Site* for more information on related product publications.

Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, *http://docs.oracle.com*. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at *http://www.adobe.com*.

1. Access the Oracle Help Center site at *http://docs.oracle.com*.
2. Click **Industries**.
3. Under the Oracle Communications subheading, click the **Oracle Communications documentation** link.
   The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings "Network Session Delivery and Control Infrastructure" or "Platforms."
4. Click on your Product and then the Release Number.
   A list of the entire documentation set for the selected product and release appears.
5. To download a file to your location, right-click the **PDF** link, select **Save target as** (or similar command based on your browser), and save to a local folder.

Customer Training

Oracle University offers training for service providers and enterprises. Visit our web site to view, and register for, Oracle Communications training:

http://education.oracle.com/communication

To obtain contact phone numbers for countries or regions, visit the Oracle University Education web site:

www.oracle.com/education/contacts

My Oracle Support (MOS)

MOS (*https://support.oracle.com*) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at *http://www.oracle.com/us/support/contact/index.html*. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select **2** for New Service Request
2. Select **3** for Hardware, Networking and Solaris Operating System Support
3. Select one of the following options:
   - For Technical issues such as creating a new Service Request (SR), Select **1**
   - For Non-technical issues such as registration or assistance with MOS, Select **2**

You will be connected to a live agent who can assist you with MOS registration and opening a support ticket.

MOS is available 24 hours a day, 7 days a week, 365 days a year.

Emergency Response

In the event of a critical service situation, emergency response is offered by the Customer Access Support (CAS) main number at 1-800-223-1711 (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at *http://www.oracle.com/us/support/contact/index.html*. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.

Chapter 2

User Interface Introduction

Topics:

This section describes the organization and usage of the application's user interface. In it you can find information about how the interface options are organized, how to use widgets and buttons, and how filtering and other page display options work.

User Interface Organization

The user interface is the central point of user interaction within an application. It is a Web-based graphical user interface (GUI) that enables remote user access over the network to an application and its functions.

The core framework presents a common set of Main Menu options that serve various applications. The common Main Menu options are:

- Administration
- Configuration
- Alarm and Events
- Security Log
- Status & Manage
- Measurements
- Help
- Legal Notices
- Logout

Applications build upon this framework to present features and functions. Depending on your application, some or all of the following Main Menu options may appear on the Network OAM GUI:

- Communication Agent
- Diameter Common
- Diameter
- UDR
- Policy and Charging
- MAP-Diameter IWF
- SBR
- RADIUS
- DCA Framework

The DSR System OAM GUI may present even more Main Menu options as listed below. The end result is a flexible menu structure that changes according to the application needs and features activated.

- Transport Manager
- SS7/Sigtran
- RBAR
- FABR
- IPFE
- GLA
- Policy and Charging
- MAP-Diameter IWF
- SBR
- RADIUS
- Mediation
- DCA Framework

Note that the System OAM Main Menu options differ from the Network OAM options. Some Main Menu options are configurable from the Network OAM server and view-only from the System OAM server. This remains true for other applications.

User Interface Elements

Table 2: User Interface Elements describes elements of the user interface.

Table 2: User Interface Elements

Element	Location	Function
Identification Banner	Top bar across the web page	Displays the company name, product name and version, and the alarm panel.
Session Banner	Next bar across the top of the web page	The left side of the banner just above the Main Menu provides the following session information: • The name of the machine to which the user is connected, and whether the user is connected via the VIP or directly to the machine. • The HA state of the machine to which the user is connected. • The role of the machine to which the user is connected. The right side of the banner: • Shows the user name of the currently logged-in user. • Provides a link to log out of the GUI.
Main Menu	Left side of screen, under banners	A tree-structured menu of all operations that can be performed through the user interface. The plus character (+) indicates a menu item contains subfolders. • To display submenu items, click the plus character, the folder, or anywhere on the same line. • To select a menu item that does not have submenu items, click on the menu item text or its associated symbol.
Work Area	Right side of panel under status	Consists of three sections: Page Title Area, Page Control Area (optional), and Page Area. • Page Title Area: Occupies the top of the work area. It displays the title of the current page being displayed, date and time, and includes a link to context-sensitive help. • Page Control Area: Located below the Page Title Area, this area shows controls for the Page Area (this area is optional). When available as an option, filter controls display in this area. The Page Control Area contains the optional layout element toolbar, which displays different elements depending on which GUI page is selected. For more information, see *Optional Layout Element Toolbar*.

Element	Location	Function
		• Page Area: Occupies the bottom of the work area. This area is used for all types of operations. It displays all options, status, data, file, and query screens. Information or error messages are displayed in a message box at the top of this section. A horizontal and/or vertical scroll bar is provided when the displayed information exceeds the page area of the screen. When a user first logs in, this area displays the application user interface page. The page displays a user-defined welcome message. To customize the message, see *Customizing the Login Message*.

Main Menu Options

Table 3: Main Menu Options describes all main menu user interface options.

Note: The menu options can differ according to the permissions assigned to a user's log-in account. For example, the Administration menu options do not appear on the screen of a user who does not have administrative privileges.

Note: Some menu items are configurable only on the Network OAM and view-only on the System OAM; and some menu options are configurable only on the System OAM.

Note: Some features do not appear in the main menu until the features are activated.

Table 3: Main Menu Options

Menu Item	Function
Administration	The Administration menu allows the user to: • General Options. Configure options such as password history and expiration, login message, welcome message, and the number of failed login attempts before an account is disabled • Set up and manage user accounts • Configure group permissions • View session information • Manage sign-on certificates • Authorize IP addresses to access the user interface • Configure SFTP user information • View the software versions report • Upgrade management including backup and reporting • Authenticate LDAP servers • Configure SNMP trapping services • Configure an export server • Configure DNS elements
Configuration	On the NOAM, allows the user to configure: • Network Elements

Menu Item	Function
	• Network Devices • Network Routes • Services • Servers • Server Groups • Resource Domains • Places • Place Associations • Interface and Port DSCP
Alarms and Events	Allows the user to view: • Active alarms and events • Alarm and event history • Trap log
Security Log	Allows the user to view, export, and generate reports from security log history.
Status & Manage	Allows the user to monitor the individual and collective status of Network Elements, Servers, HA functions, Databases, KPIs, system Processes, and Tasks. The user can perform actions required for server maintenance, database management, data, and ISO file management.
Measurements	Allows the user to view and export measurement data.
Transport Manager (optional)	On the SOAM, allows the user to configure adjacent nodes, configuration sets, or transports. A maintenance option allows the user to perform enable, disable, and block actions on the transport entries. This option only appears with the DSR application.
Communication Agent (optional)	Allows the user to configure Remote Servers, Connection Groups, and Routed Services. The user can perform actions to enable, disable, and block connections. Also allows the user to monitor the status of Connections, Routed Services, and HA Services.
SS7/Sigtran (optional)	On the SOAM, allows the user to configure various users, groups, remote signaling points, links, and other items associated with SS7/Sigtran; perform maintenance and troubleshooting activities; and provides a command line interface for bulk loading SS7 configuration data. This option only appears with the DSR application.
Diameter Common (optional)	Allows the user to view or configure: • Dashboard, configure on the NOAM; view on both OAMs • Network Identifiers on the SOAM - MCC Ranges • Network Identifiers on the NOAM - MCCMNC and MCCMNC Mapping • MPs (on the SOAM) - editable Profile parameters and Profile Assignments The DSR Bulk Import and Export functions are available on both OAMs for the data configured on that OAM.

Menu Item	Function
Diameter (optional)	Allows the user to configure, modify, and monitor Diameter routing: • On the NOAMP, Diameter Topology Hiding and Egress Throttle List configuration • On the SOAM, Diameter Configuration, Maintenance, Reports, Troubleshooting with IDIH, AVP Dictionary, and Diameter Mediation configuration
UDR (optional)	Allows the user to add, edit, store, and manage subscriber and pool data. The user can also monitor the import, export, and subscribing client status. This option only appears with the UDR application.
RBAR (Range-Based Address Resolution) (optional)	Allows the user to configure the following Range-Based Address Resolution (RBAR) settings: • Applications • Exceptions • Destinations • Address Tables • Addresses • Address Resolutions • System Options This is accessible from the SOAM only. This option only appears with the DSR application.
FABR (Full Address Based Resolution) (optional)	Allows the user to configure the following Full Address Based Resolution (FABR) settings: • Applications • Exceptions • Default Destinations • Address Resolutions • System Options This is accessible from the SOAM only. This option is only available with the DSR application.

Policy and Charging (optional)	On the NOAMP, allows the user to perform configuration tasks, edit options, and view elements for:
	• General Options
	• Access Point Names
	• Policy DRA
	    • PCRF Pools
	    • PCRF Sub-Pool Selection Rules
	    • Network-Wide Options
	• Online Charging DRA
	    • OCS Session State
	    • Realms

Menu Item	Function

	• Network-Wide Options
	• Alarm Settings
	• Congestion Options
	Additionally on the NOAMP, users are allowed to perform maintenance tasks, edit options, and view elements for:
	• Maintenance
	  • SBR Database Status
	  • SBR Status
	  • SBR Database Reconfiguration Status
	  • Policy Database Query
	On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for:
	• General Options
	• Access Point Names
	• Policy DRA
	  • PCRFs
	  • Binding Key Priority
	  • PCRF Pools
	  • PCRF Pool to PRT Mapping
	  • PCRF Sub-Pool Selection Rules
	  • Policy Clients
	  • Suspect Binding Removal Rules
	  • Site Options
	• Online Charging DRA
	  • OCSs
	  • CTFs
	  • OCS Session State
	  • Realms
	• Error Codes
	• Alarm Settings
	• Congestion Options
	This option only appears with the DSR application.

Gateway Location Application (optional)	On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for: • Exceptions • Options GLA can deploy with Policy DRA (in the same DA-MP or a separate DA-MP). This option only appears with the DSR application.

<table>
<tr><th>Menu Item</th><th>Function</th></tr>
<tr><td>IPFE (optional)</td><td>Allows the user to configure IP Front End (IPFE) options and IP List TSAs.

This is accessible from the SOAM server only. This option only appears with the DSR application.</td></tr>
<tr><td>MAP-Diameter Interworking (optional)</td><td>On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for the DM-IWF DSR Application:
DM-IWF Options
Diameter Exception
On the NOAMP, allows the user to perform configuration tasks, edit options, and view elements for the MD-IWF SS7 Application:
MD-IWF Options
Diameter Realm
Diameter Identity GTA
GTA Range to PC
MAP Exception
CCNDC Mapping
This option only appears with the DSR application.</td></tr>
<tr><td>RADIUS (optional)</td><td>Allows the user to perform configuration tasks, edit system options, and view elements for:
Network Options
Message Authenticator Configuration Sets
Shared Secret Configuration Sets
Ingress Status Server Configuration Sets
Message Conversion Configuration Sets
NAS Node
This option only appears with the DSR application.</td></tr>
<tr><td>SBR (optional)</td><td>Allows the user to perform configuration tasks, edit system options, and view elements for:
SBR Databases
SBR Database Resizing Plans
SBR Data Migration Plans
Database Options
Additionally, on the NOAMP, users are allowed to perform maintenance tasks, edit options, and view elements for:
Maintenance
SBR Database Status
SBR Status
SBR Database Reconfiguration Status
This option only appears with the DSR application.</td></tr>
</table>

Menu Item	Function
DCA Framework (optional)	Allows the user to perform configuration tasks, edit system options, and view elements for DCA applications: • Custom MEALs • General Options • Trial MPs assignment • Application Control • System Options
Help	Launches the Help system for the user interface
Legal Notices	Product Disclaimers and Notices
Logout	Allows the user to log out of the user interface

Missing Main Menu options

Permissions determine which Main Menu options are visible to users. Permissions are defined through the **Group Administration** page. The default group, **admin**, is permitted access to all GUI options and functionality. Additionally, members of the **admin** group set permissions for other users.

Main Menu options vary according to the group permissions assigned to a user's account. Depending on your user permissions, some menu options may be missing from the Main Menu. For example, Administration menu options do not appear on your screen if you do not have administrative permissions. For more information about user permissions, see *Group Administration* in the OAM section of the online help, or contact your system administrator.

Common Graphical User Interface Widgets

Common controls allow you to easily navigate through the system. The location of the controls remains static for all pages that use the controls. For example, after you become familiar with the location of the display filter, you no longer need to search for the control on subsequent pages because the location is static.

Supported Browsers

This application supports the use of Microsoft® Internet Explorer 8.0, 9.0, or 10.0.

System Login Page

Access to the user interface begins at the System Login page. The System Login page allows users to log in with a username and password and provides the option of changing the password upon login. The System Login page also features a date and time stamp reflecting the time the page was last refreshed. Additionally, a customizable login message appears just below the **Log In** button.

The user interface is accessed via HTTPS, a secure form of the HTTP protocol. When accessing a server for the first time, HTTPS examines a web certificate to verify the identity of the server. The configuration of the user interface uses a self-signed web certificate to verify the identity of the server. When the server is first accessed, the supported browser warns the user that the server is using a self-signed certificate. The browser requests confirmation that the server can be trusted. The user is required to confirm the browser request to gain access.

Customizing the Login Message

Before logging in, the **System Login** page appears. You can create a login message that appears just below the **Log In** button on the **System Login** page.

Figure 1: Oracle System Login

1. From the **Main Menu**, click **Administration** > **General Options**.

   The **General Options Administration** page appears.
2. Locate **LoginMessage** in the **Variable** column.
3. Enter the login message text in the **Value** column.
4. Click **OK** or **Apply** to submit the information.

   A status message appears at the top of the Configuration Administration page to inform you if the operation was successful.

The next time you log in to the user interface, the login message text displays.

Accessing the DSR Graphical User Interface

In DSR, some configuration is done at the NOAM server, while some is done at the SOAM server. Because of this, you need to access the DSR graphical user interface (GUI) from two servers. Certificate Management (Single Sign-On) can be configured to simplify accessing the DSR GUI on the NOAM and the SOAM.

For information on configuring Single Sign-On certificates, see **OAM** > **Administration** > **Access Control** > **Certificate Management** in the DSR online help.

After the certificates have been configured, you can log into the DSR GUI on any NOAM or SOAM, and then access the DSR GUI on other servers (NOAM or other SOAMs) without having to re-enter your login credentials.

1. In the browser URL field, enter the fully qualified hostname of the NOAM server, for example https://dsr-no.yourcompany.com.

   When using Single Sign-On, you cannot use the IP address of the server.
2. When prompted by the browser, confirm that the server can be trusted.

   The System Login page appears.
3. Enter the Username and Password for your account.

   The DSR GUI for the NOAM appears.
4. To access the DSR GUI for the SOAM, open another browser window and enter the fully qualified hostname of the SOAM.

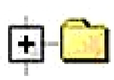
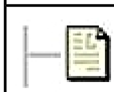
   The DSR GUI for the SOAM appears

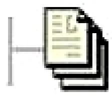
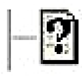
You can toggle between the DSR GUI on the NOAM and the DSR GUI on the SOAM as you perform configuration tasks.

Main Menu Icons

This table describes the icons used in the **Main Menu**.

Table 4: Main Menu Icons

Icon	Name	Description
	Folder	Contains a group of operations. If the folder is expanded by clicking the plus (+) sign, all available operations and sub-folders are displayed. Clicking the minus (-) collapses the folder.
	Config File	Contains operations in an Options page.
	File with Magnifying Glass	Contains operations in a Status View page.
	File	Contains operations in a Data View page.

Icon	Name	Description
	Multiple Files	Contains operations in a File View page.
	File with Question Mark	Contains operations in a Query page.
	User	Contains operations related to users.
	Group	Contains operations related to groups.
	Task	Contains operations related to Tasks
	Help	Launches the Online Help.
	Logout	Logs the user out of the user interface.

Work Area Displays

In the user interface, tables, forms, tabbed pages, and reports are the most common formats.

Note: Screen shots are provided for reference only and may not exactly match a specific application's GUI.

Tables

Paginated tables describe the total number of records being displayed at the beginning and end of the table. They provide optional pagination with **First | Prev | Next | Last** links at both the beginning and end of this table type. Paginated tables also contain action links on the beginning and end of each row. For more information on action links and other page controls, see *Page Controls*.

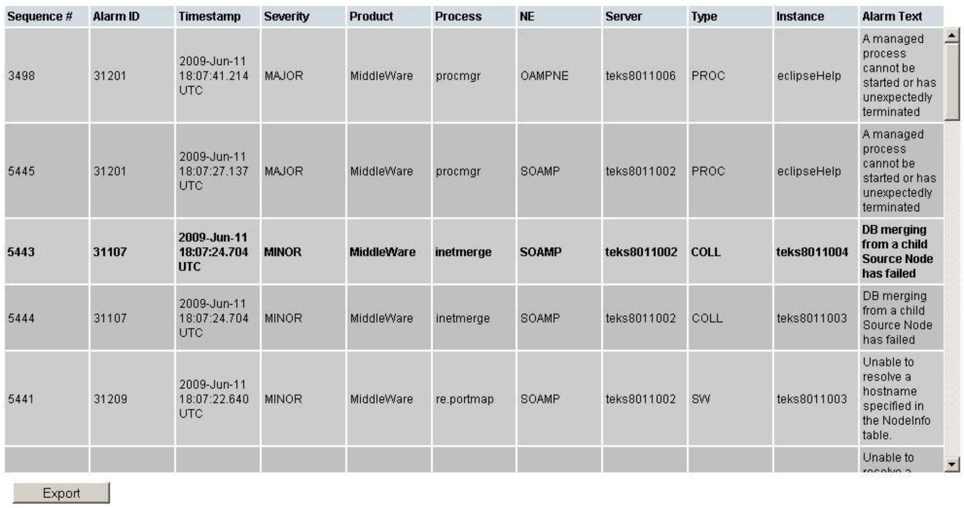

Displaying Records 1-1 of 1 | First | Prev | Next | Last

Action	System ID	IP Address	Permission	Action
Edit Delete	lisa	10.25.62.4	READ_WRITE	Edit Delete

Displaying Records 1-1 of 1 | First | Prev | Next | Last

Figure 2: Paginated Table

Scrollable tables display all of the records on a single page. The scroll bar, located on the right side of the table, allows you to view all records in the table. Scrollable tables also provide action buttons that operate on selected rows. For more information on buttons and other page controls, see *Page Controls*.



Sequence #	Alarm ID	Timestamp	Severity	Product	Process	NE	Server	Type	Instance	Alarm Text
3498	31201	2009-Jun-11 18:07:41.214 UTC	MAJOR	MiddleWare	procmgr	OAMPNE	teks8011006	PROC	eclipseHelp	A managed process cannot be started or has unexpectedly terminated
5445	31201	2009-Jun-11 18:07:27.137 UTC	MAJOR	MiddleWare	procmgr	SOAMP	teks8011002	PROC	eclipseHelp	A managed process cannot be started or has unexpectedly terminated
5443	**31107**	**2009-Jun-11 18:07:24.704 UTC**	**MINOR**	**MiddleWare**	**inetmerge**	**SOAMP**	**teks8011002**	**COLL**	**teks8011004**	**DB merging from a child Source Node has failed**
5444	31107	2009-Jun-11 18:07:24.704 UTC	MINOR	MiddleWare	inetmerge	SOAMP	teks8011002	COLL	teks8011003	DB merging from a child Source Node has failed
5441	31209	2009-Jun-11 18:07:22.640 UTC	MINOR	MiddleWare	re.portmap	SOAMP	teks8011002	SW	teks8011003	Unable to resolve a hostname specified in the NodeInfo table.
										Unable to

Export

Figure 3: Scrollable Table

Note: Multiple rows can be selected in a scrollable table. Add rows one at a time using CTRL-click. Add a span of rows using SHIFT-click.

Forms

Forms are pages on which data can be entered. Forms are typically used for configuration. Forms contain fields and may also contain a combination of pulldown lists, buttons, and links.

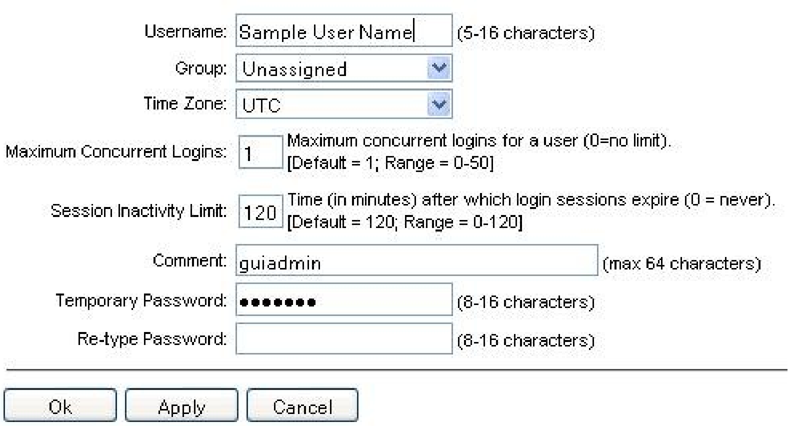


Figure 4: Form Page

Tabbed pages

Tabbed pages provide collections of data in selectable tabs. Click on a tab to see the relevant data on that tab. Tabbed pages also group Retrieve, Add, Update, and Delete options on one page. Click on the relevant tab for the task you want to perform and the appropriate fields populate on the page. Retrieve is always the default for tabbed pages.

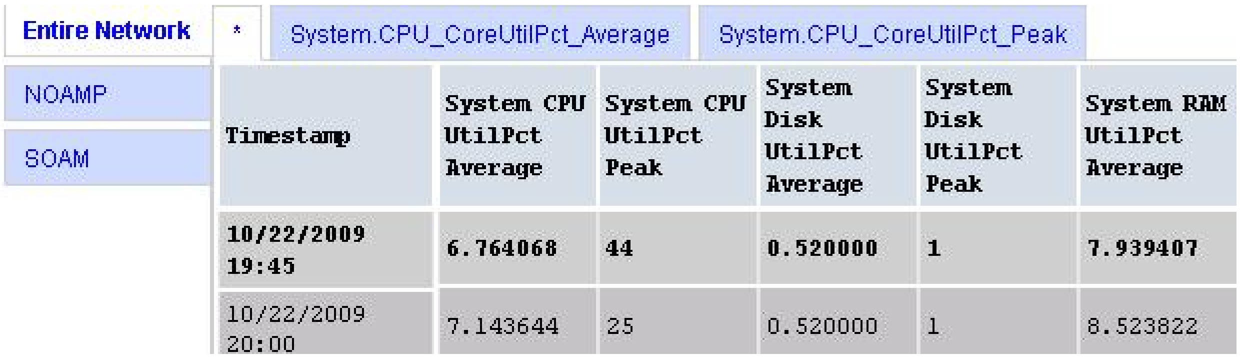


Figure 5: Tabbed Pages

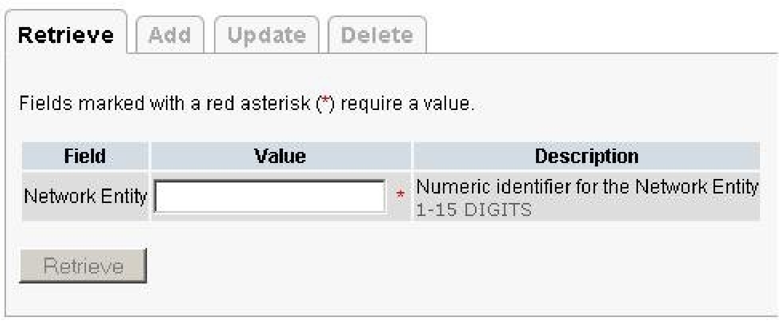


Figure 6: Tabbed Pages

Reports

Reports provide a formatted display of information. Reports are generated from data tables by clicking **Report**. Reports can be viewed directly on the user interface, or they can be printed. Reports can also be saved to a text file.

```
=====================================================================================

User Account Usage Report

=====================================================================================

Report Generated: Fri Jun 19 19:30:55 2009 UTC
From: Unknown Network OAM&P on host teks5001701
Report Version: 1.0
User: guiadmin

-------------------------------------------------------------------------------------

Username          Date of Last Login    Days Since Last Login   Account Status
----------------  --------------------  ----------------------  ---------------
guiadmin          2009-06-19 19:00:17   0                       enabled

-------------------------------------------------------------------------------------

End of User Account Usage Report

=====================================================================================
```

Figure 7: Report Output

Customizing the Splash Page Welcome Message

When you first log in to the user interface, the splash page appears. Located in the center of the main work area is a customizable welcome message. Use this procedure to create a message suitable for your needs.

1. From the **Main Menu**, click **Administration** > **General Options**.
2. Locate **Welcome Message** in the **Variable** column.
3. Enter the desired welcome message text in the **Value** column.
4. Click **OK** to save the change or **Cancel** to undo the change and return the field to the previously saved value.
   A status message appears at the top of the page to inform you if the operation was successful.

The next time you log in to the user interface, the new welcome message text is displayed.

Column Headers (Sorting)

You can sort a table by a column by clicking the column header. However, sorting is not necessarily available on every column. Sorting does not affect filtering.

When you click the header of a column that the table can be sorted by, an indicator appears in the column header showing the direction of the sort. See *Figure 8: Sorting a Table by Column Header*. Clicking the column header again reverses the direction of the sort.

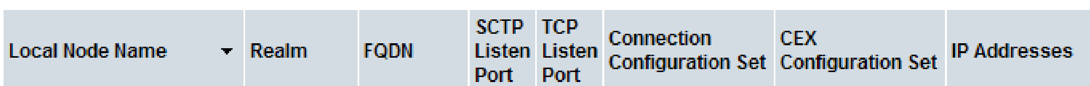


Figure 8: Sorting a Table by Column Header

Page Controls

User interface pages contain controls, such as buttons and links, that perform specified functions. The functions are described by the text of the links and buttons.

Note: Disabled buttons are grayed out. Buttons that are irrelevant to the selection or current system state, or which represent unauthorized actions as defined in **Group Administration**, are disabled. For example, **Delete** is disabled for users without Global Data Delete permission. Buttons are also disabled if, for example, multiple servers are selected for an action that can only be performed on a single server at a time.

Table 5: Example Action Buttons contains examples of Action buttons.

Table 5: Example Action Buttons

Action Button	Function
Insert	Inserts data into a table.
Edit	Edits data within a table.
Delete	Deletes data from table.

Action Button	Function
Change	Changes the status of a managed object.

Some Action buttons take you to another page.

Submit buttons, described in *Table 6: Submit Buttons*, are used to submit information to the server. The buttons are located in the page area and accompanied by a table in which you can enter information. The Submit buttons, except for **Cancel**, are disabled until you enter some data or select a value for all mandatory fields.

Table 6: Submit Buttons

Submit Button	Function
OK	Submits the information to the server, and if successful, returns to the View page for that table.
Apply	Submits the information to the server, and if successful, remains on the current page so that you can enter additional data.
Cancel	Returns to the View page for the table without submitting any information to the server.

Clear Field Control

The clear field control allows you to clear the value from a pulldown list. The clear field control is available only on some pulldown fields.

Click the **X** next to a pulldown list to clear the field.

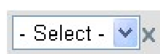


Figure 9: Clear Field Control X

Optional Layout Element Toolbar

The optional layout element toolbar appears in the Page Control Area of the GUI.

Figure 10: Optional Layout Element Toolbar

The toolbar displays different elements depending on which GUI page is selected. The elements of the toolbar that can appear include:

- Filter – Allows you to filter data in a table.
- Errors – Displays errors associated with the work area.
- Info – Displays information messages associated with the work area.
- Status – Displays short status updates associated with the main work area.
- Warning – Displays warnings associated with the work area.

Notifications

Some messages require immediate attention, such as errors and status items. When new errors occur, the Errors element opens automatically with information about the error. Similarly, when new status items are added, the Status element opens. If you close an automatically opened element, the element stays closed until a new, unacknowledged item is added.

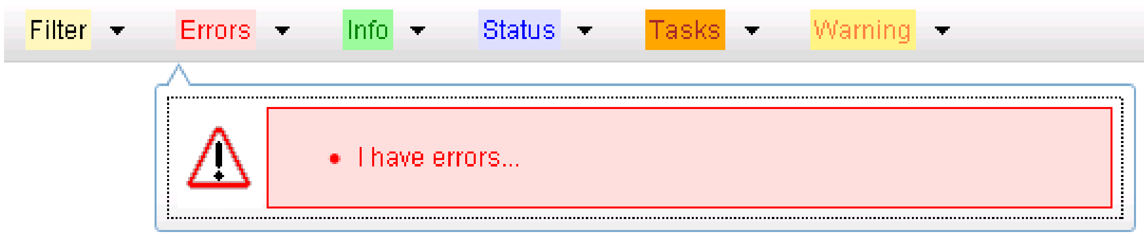


Figure 11: Automatic Error Notification

Note: Viewing and closing an error does not clear the Errors element. If you reopen the Errors element, previously viewed errors are still in the list.

When new messages are added to Warning or Info, the styling of the element changes to indicate new messages are available. The styling of the Task element changes when a task changes state (such as, a task begins or ends).

Opening an Element in the Toolbar

Use this procedure to open an element in the optional layout element toolbar.

1. Click the text of the element or the triangle icon to open an element.

   The selected element opens and overlays the work area.
2. Click **X** to close the element display.

Filters

Filters are part of the optional layout element toolbar and appear throughout the GUI in the Page Control Area. For more information about optional layout element toolbar functionality, see *Optional Layout Element Toolbar*.

Filters allow you to limit the data presented in a table and can specify multiple filter criteria. By default, table rows appear unfiltered. Three types of filters are supported, however, not all filtering options are available on every page. The types of filters supported include:

- Network Element – When enabled, the Network Element filter limits the data viewed to a single Network Element.

  Note: Once enabled, the Network Element filter affect all pages that list or display data relating to the Network Element.
- Collection Interval – When enabled, the collection interval filter limits the data to entries collected in a specified time range.
- Display Filter – The display filter limits the data viewed to data matching the specified criteria.

Once a field is selected, it cannot be selected again. All specified criteria must be met in order for a row to be displayed.

The style or format of filters may vary depending on which GUI pages the filters are displayed. Regardless of appearance, filters of the same type function the same.

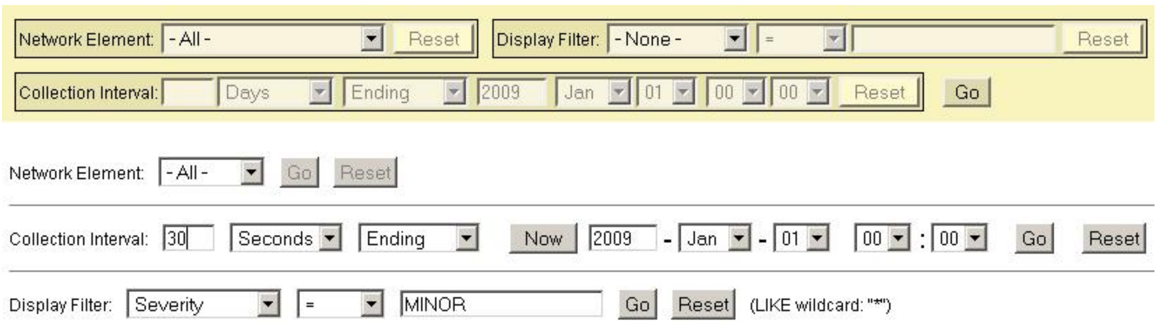


Figure 12: Examples of Filter Styles

Filter Control Elements

This table describes filter control elements of the user interface.

Table 7: Filter Control Elements

Operator	Description
=	Displays an exact match.
!=	Displays all records that do not match the specified filter parameter value.
>	Displays all records with a parameter value that is greater than the specified value.
>=	Displays all records with a parameter value that is greater than or equal to the specified value.
<	Displays all records with a parameter value that is less than the specified value.
<=	Displays all records with a parameter value that is less than or equal to the specified value.
Like	Enables you to use an asterisk (*) as a wildcard as part of the filter parameter value.
Is Null	Displays all records that have a value of **Is Null** in the specified field.

Note: Not all filterable fields support all operators. Only the supported operators are available for you to select.

Filtering on the Network Element

The global Network Element filter is a special filter that is enabled on a per-user basis. The global Network Element filter allows a user to limit the data viewed to a single Network Element. Once enabled, the global Network Element filter affects all sub-screens that display data related to Network Elements. This filtering option may not be available on all pages.

1. Click **Filter** in the optional layout element toolbar.
2. Select a Network Element from the **Network Element** pulldown menu.
3. Click **Go** to filter on the selection, or click **Reset** to clear the selection.

Records are displayed according to the specified criteria.

Filtering on Collection Interval

The Collection Interval filter allows a user to limit the data viewed to a specified time interval. This filtering option may not be available on all pages.

1. Click **Filter** in the optional layout element toolbar.
2. Enter a duration for the **Collection Interval** filter.

   The duration must be a numeric value.
3. Select a unit of time from the pulldown menu.

   The unit of time can be seconds, minutes, hours, or days.
4. Select **Beginning** or **Ending** from the pulldown menu.
5. Click **Go** to filter on the selection, or click **Reset** to clear the selection.

Records are displayed according to the specified criteria.

Filtering Using the Display Filter

Use this procedure to perform a filtering operation. This procedure assumes you have a data table displayed on your screen. This process is the same for all data tables. However, all filtering operations are not available for all tables.

1. Click **Filter** in the optional layout element toolbar.
2. Select a field name from the **Display Filter** pulldown menu.

   This selection specifies the field in the table that you want to filter on. The default is **None**, which indicates that you want all available data displayed.

   The selected field name displays in the **Display Filter** field.
3. Select an operator from the operation selector pulldown menu.
4. Enter a value in the value field.

   This value specifies the data that you want to filter on. For example, if you specify Filter=Severity with the equals (=) operator and a value of MINOR, the table would show only records where Severity=MINOR.
5. For data tables that support compound filtering, click **Add** to add another filter condition. Then repeat steps 2 through 4.

   Multiple filter conditions are joined by an AND operator.
6. Click **Go** to filter on the selection, or click **Reset** to clear the selection.

Records are displayed according to the specified criteria.

Pause Updates

Some pages refresh automatically. Updates to these pages can be paused by selecting the **Pause updates** checkbox. Uncheck the **Pause updates** checkbox to resume automatic updates. The **Pause updates** checkbox is available only on some pages.

Max Records Per Page Controls

Max Records Per Page is used to control the maximum number of records displayed in the page area. If a page uses pagination, the value of Max Records Per Page is used. Use this procedure to change the Max Records Per Page.

1. From the **Main Menu**, click **Administration** > **General Options**.
2. Change the value of the **MaxRecordsPerPage** variable.

   Note: Maximum Records Per Page has a range of values from 10 to 100 records. The default value is 20.

3. Click **OK** or **Apply**.

   OK saves the change and returns to the previous page.

   Apply saves the change and remains on the same page.

The maximum number of records displayed is changed.

Chapter 3

Administration

Topics:

This section describes administrative tasks. These tasks are at the system-level and are limited to users with administrative privileges. The associated menu items do not appear in the user interface for non-administrative users.

General Options

Use the **General Options** page to view a list of global options.

Note: The **General Options** page content is dynamic and reflects parameters set in other code, and as such, there is no static number of rows in this page.

General Options Administration elements

This table describes the elements of the **General Options** page.

Table 8: General Options Administration Elements

Element	Description
Enable MMI	Enable Machine-to-Machine Interface access on servers. In addition to enabling the feature here at least one user must be authorized for MMI access. Disabled = 0 Enabled = 1 Default: 1 A value is required.
Last Login Expiration	Indicates the number of days of inactivity before a user account is disabled. The account will be disabled when the user next logs in using valid credentials. The account must be re-enabled by the guiadmin user or any user with admin group permissions. Entering a value of 0 indicates never disable. Format: Numeric Range: 0-200 Default: 0 A value is required.
Lock out window	Indicates the amount of time (in minutes) in which exceeding the **Maximum Consecutive Failed Login** attempts will cause an account to be disabled. The account must be re-enabled by the guiadmin user or any user with admin group permissions. Entering a value of 0 indicates the window is unlimited and will disable the **Maximum Consecutive Failed Login** attempts setting. Format: Numeric Range: 0-unlimited Default: 30 A value is required.

Element	Description
Maximum Consecutive Failed Login	Indicates the maximum number of failed login attempts that can occur within the **Lock out window** before the account is disabled. The account must be re-enabled by the guiadmin user or any user with admin group permissions. Entering a value of 0 indicates never disable. Format: Numeric Range: 0-10 Default: 3 A value is required.
Maximum Password History	Maximum number of passwords maintained in a history list before reuse of a password is allowed. Entering a value of 0 in this field means that no password history is applied and the same password can be reused. A value is required. Format: Numeric Range: 0-10 Default: 3 A value is required.
Maximum Records per Page	The maximum number of records to display per page Format: Numeric Range: 10-100 Default: 20 A value is required.
Minimum Password Length	This field indicates the minimum number of valid characters that are required for a user password. Format: Numeric Range: 8-16 Default: 8 A value is required.
Password Expiration	The number of calendar days that passwords stay active. By default, passwords expire in 90 days. Entering a value of 0 in this field means that passwords never expire. Note that the expiration is retroactive: if the expiration is set to 30 and it has been 45 days since the password was last changed, the password is now expired. Format: Numeric Range: 0-90 Default: 90 A value is required.

Element	Description
Re-enable Window	Amount of time (in minutes) in which automatically locked accounts will be reenabled. Entering a value of 0 means do not automatically reenable accounts. Format: Numeric Range: 0-unlimited Default: 15 A value is required.
SAML Enabled	Enables SAML authentication of users (Security Assertion Markup Language). Disabled = 0 Enabled = 1 Default: 0 A value is required.
SAML Inactivity Timeout	The time (in minutes) before SAML authenticated sessions expire. Entering a value of 0 indicates no expiration. Format: Numeric Range: 0-3600 Default: 120 A value is required.
Single Sign on Session Life	Indicates the maximum session life (in minutes) for a Single-Sign-On session. Format: Numeric Range: 0-3600 Default: 120 A value is required.
Wan Bulk Load Limit	Maximum number of allowed simultaneous WAN based bulk loads. Format: Numeric Range: 1-2 Default: 1 A value is required.
Durability Administrative State	The durability state of the system where: • 1 = NO disk (data is replicated to the active NO only) • 2 = NO pair (data is replicated to both the active and standby NOs) • 3 = NO Disaster Recovery NO (data is replicated to the active and standby NOs, as well as the secondary NO) Format: Numeric Range: 1-3

Element	Description
	Default: 1 A value is required.
Disabled Account	Message displayed when attempting to login to a disabled account.
Failed Login Message	Message displayed on failed login.
IP Authorization Denied message	Configurable portion of IP Authorization Denied message.
Login Message	Configurable portion of login message seen on the login screen.
Welcome Message	Welcome message seen after successful login.
Export data space replace	The character to replace a space in the export group name when added to the export directory or filename. N = No space replace Default: underscore

Viewing options

Use this procedure to view a list of global options:

Select **Administration** > **General Options**.

The **General Options Administration** page appears. The **General Options** pane lists all global options on the system. You can view the details of each option.

Updating a current global option

Use this procedure to update a global option.

1. Select **Administration** > **General Options**.
   The **General Options** administration page appears.
2. Locate the option you want to change.
3. Change the value of the option.
4. Click **OK** to submit the information.
   This submits the information, updates the database tables, and allows you to input additional data.

The global option is changed.

Access Control

The Access Control page enables you to perform functions such as adding, modifying, enabling, or deleting user accounts, passwords, groups, sessions, single sign-on certificates, IPs, and SFTP user information.

Users administration

The **Users Administration** page enables you to perform functions such as adding, modifying, enabling, or deleting user accounts. The primary purpose of this page is to set up users for logging into the system. This page can also be used for adding users for the purpose of validating usernames and passwords in SOAP provisioning requests.

Each user is also assigned to a **group** or groups. Permissions to a set of functions are assigned to each group. The permissions determine the functions and restrictions for the users belonging to the group.

A user must have user/group administrative privileges to view or make changes to user accounts or groups. The administrative user can set up or change user accounts and groups, enable or disable user accounts, set password expiration intervals, and change user passwords.

System user

Each user who is allowed access to the user interface is assigned a unique **Username**. This **Username** and the associated password must be provided during login. After three consecutive, unsuccessful login attempts, a user account is disabled. The number of failed login attempts before an account is disabled is a value that is configured through **Administrations** > **Options**. For more information, see *General Options*.

SOAP user

The UDR SOAP provisioning interface processes SOAP requests containing a username and password in the SOAP header, but these values are ignored unless the user authentication feature is activated using the **SOAP Username/Password Authentication** field on the **UDR** > **Configuration** > **Provisioning Options** page. Once activated, the username and password in a SOAP provisioning request is checked to the list of existing users. If no match is found for the username and password the verification fails and the request is rejected. Note that the SOAP user is not intended to log into the UDR system.

Insert New User elements

The **Users [Insert]** form displays the following elements:

Table 9: User Administration Elements

Element	Description	Data Input Notes
Username	A field for the Username. The Username allows access to the GUI and must be unique.	Format: String Range: 5-16 lowercase alphanumeric characters (a to z, 0 to 9)
Group	The groups to which the selected Username is assigned. Groups define the permissions assigned to the user. The permissions determine the functions and restrictions for the users belonging to the group.	Range: provisioned groups Default: admin
Authentication Options	Authentication options used with the account. When using local authentication,	Format: Checkbox

Element	Description	Data Input Notes
	the account is disabled until a password is established. If using remote authentication, an authentication server must be configured.	Range: Allow Remote Auth or Allow Local Auth Default: Local Auth enabled, Remote Auth disabled
Access Options	Select the ways users can access their account. The two options are Machine-to-Machine and GUI access. Both may be selected. **Note:** When setting up a user for SOAP provisioning request validation, check mark *Allow MMI Access*. It is also recommended that you uncheck *Allow GUI Access* (users set up for SOAP request validation do not need UDR GUI access).	Format: Checkbox Range: Allow GUI Access and/or Allow MMI Access Default: GUI and MMI access enabled
Access Allowed	Whether the user account is enabled.	Format: Checkbox Default: Account Enabled
Maximum Concurrent Logins	Maximum concurrent logins per user per server.	This feature cannot be enabled for users belonging to the admin group. Range: 0-50 Default: 0 0 = no limit
Session Inactivity Limit	The time, in minutes, after which login session expires.	Range: 0-3600 Default: 120 0 = session never expires
Comment	A field for user-defined text about this account (100 character maximum). This field is optional.	Format: Alphanumeric characters Range: 0-100 characters

Adding a new user

Note: Before performing this procedure, you should know to which user groups this user should be assigned. The group assignment determines the functions that a user has access to. If you need to create a new group for this user, you should do so before adding the user (see *Adding a group*).

Use this procedure to add a new user to the system.

Note: When setting up a user for SOAP provisioning request validation, the only field other than **Username** and **Group** used for this validation process is **Access Options**.

1. Select **Administration** > **Access Control** > **Users**.

2. Click **Insert**.
3. Enter a **Username** that consists of 5-16 characters.

   For more information about **Username**, or any field on this page, see *Insert New User elements*.
4. Select a **Group** or **Groups** for the user.
5. Select the **Authentication Options** to be used with this account.
6. Select the **Access Options** allowed for this account. When setting up a user for SOAP provisioning request validation, check mark *Allow MMI Access*. It's highly recommended you also uncheck *Allow GUI Access* (users set up for SOAP request validation should not have UDR GUI access).

   Note: Both options may be selected when setting up UDR users.
7. Select whether the account is enabled using the **Access Allowed** checkbox.
8. Enter the **Maximum Concurrent Logins**.

   Note: Maximum Concurrent Logins cannot be enabled for users in the admin group.
9. Enter the **Session Inactivity Limit**.
10. Enter text about this user in the **Comment** field.

    This field is required.
11. Perform one of the following actions:
    - Click **Apply**.

      A confirmation message appears at the top of the **Insert Users** page to inform you the new user has been added to the database. To close the Insert Users page, click **Cancel**.
    - Click **OK**.

      The **Users administration page** re-appears with the new user displayed.

The new user is added to the database.

User Administration elements

The **Users** page displays the following elements:

Table 10: User Administration Elements

Element	Description
Username	The currently selected Username. The Username allows access to the GUI and must be unique.
Account Status	Enabled or disabled. If a user account is disabled, the user is unable to log in until an administrative user manually enables the account. If the user account is currently logged in, this action does not disrupt the session.
Remote Auth	Whether remote authorization is enabled or disabled.
Local Auth	Whether local authorization is enabled or disabled.
GUI Access	Whether GUI access is enabled or disabled.

Element	Description
MMI Access	Whether Machine-to-Machine access is enabled or disabled.
Consecutive Failed Login Attempts	The number of consecutive failed login attempts.
Concurrent Logins Allowed	The number of concurrent logins allowed.
Inactivity Limit	The limit set on account inactivity after login.
Comment	An optional field for user-defined text about this account (64 character maximum).
Groups	The groups to which the selected Username is assigned. Also provides a pull down list of provisioned groups. A user's groups determine the permissions assigned to the user. The permissions determine the functions and restrictions for the users belonging to the group.

Viewing user account information

Use this procedure to view user account information.

1. Select **Administration** > **Access Control** > **Users**.

   The **Users Administration** page appears with the user account information displayed.
2. To view more detailed information, select a user and then click **Report.**
   The Users Report displays with detailed information on the user account.

Updating user account information

Use this procedure to update user account information on the user interface:

1. Select **Administration** > **Access Control** > **Users**.
2. Select a user from the listing.
3. Select **Edit.**
4. Modify one or more of the user account information fields.
5. Click **OK** or **Apply**.

   The **Users administration** page re-appears. The user account information is updated in the database, and the changes take effect immediately.

Deleting a user

Use this procedure to delete a user from the database. The next time the user attempts to log in, the user will be unable to log in. If the user is currently logged in to the system, this operation does not disrupt the user's current session. To stop a current user session, see *Deleting user sessions*, or to disable a user's account, see *Enabling or disabling a user account*.

1. Select **Administration** > **Access Control** > **Users**.
2. Select the appropriate user from the listing.
3. Click **Delete**.

4. Click **OK** to delete the user.

The user has been deleted from the database and no longer appears in the **Username** menu.

Enabling or disabling a user account

The user interface automatically disables a user account after five consecutive failed login attempts. The administrative user can also manually disable a user account to prevent a user from logging on to the system. If a user account is disabled, the user is unable to log in until an administrative user manually enables the account.

Use this procedure to enable or disable a user account:

1. Select **Administration** > **Access Control** > **Users**.
2. Select a **Username** from the listing.
3. Select **Edit.**
4. Click the **Account Enabled** checkbox to enable/disable the account. A check mark indicates that the account is enabled.
5. Click **OK**.

   The account is enabled/disabled as selected.

Changing a user's assigned group

Use this procedure to change a user's assigned groups. The group assignment determines the functions that a user has access to (see *Groups Administration*). The next time the user logs in, the new assignment takes effect. If the user is currently logged in to the system, this operation does not affect the user's current session.

1. Select **Administration** > **Access Control** > **Users**.
2. Select the appropriate user from the listing.
3. Select **Edit.**
4. Select the appropriate groups from the **Group** listing.
5. Click **OK**.

The user's assigned groups are updated in the database and take effect the next time the user attempts to log into the user interface.

Generating a user report

A user account usage report can be generated from the users page. This type of report provides information about a user's account usage including last login date, the number of days since the user last logged in, and the user's account status.

Use this procedure to generate a user account usage report.

1. Select **Administration** > **Access Control** > **Users**.
2. Select one or more users.

   Note: If no users are selected then all users appear in the users report.

3. Click **Report**.
   The Users Report is generated. This report can be printed or saved to a file.

4. Click **Print** to print the report.
5. Click **Save** to save the report to a file.

Passwords

Password configuration, such as setting passwords, password history rules, and password expiration, occurs in **Administration**. The application provides two ways to set passwords: through the user interface, see *Setting a password from the Users Administration page*, and at login, see *Setting a password from the System Login page*.

The user interface provides two forms of password expiration. The administrative user can configure password expiration on a system-wide basis. By default, password expiration occurs after 90 days. The administrative user can also disable the password expiration function. For procedural information on configuring password expiration, see *Configuring the expiration of a password*.

Password expiration is also forced the first time a user logs in to the user interface. During initial user account setup, the administrative user grants the user a temporary password. When the user attempts to log in for the first time, the software forces the user to change the password. The user is redirected to page where the user must enter the old password and then enter a new, valid password twice.

A valid password:

- must contain from 8 to 16 characters.
- must contain at least three of the four types of characters: numerics, lower case letters, upper case letters, or special characters (! @ # $ % ^ & * ? ~).
- cannot be the same as the Username or contain the Username in any part of the password (for example, **Username=jsmith** and **password=$@jsmithJS** would be invalid).
- cannot be the inverse of the Username (for example, **Username=jsmith** and **password=$@htimsj** would be invalid).
- cannot contain three or more consecutively repeated characters, or three or more ascending or descending alpha-numeric characters in a row, for example, **1234, aaaa, dcba**.
- cannot reuse any of the last three passwords.

Setting a password from the Users Administration page

Use this procedure to define or change an existing user's password. Note that, by default, passwords expire every 90 days. When the SOAP request authentication feature is turned on, if a user's password expires and the SOAP request is not updated to reflect the new password, the SOAP request will fail authentication validation. To change the expiration date to another value (including setting it to 0 so the password never expires), follow the steps in *Configuring the expiration of a password*.

Note: Only an administrative user may use this procedure. For information about how a non-administrative user can change a password, see *Setting a password from the System Login page*.

1. Select **Administration** > **Access Control** > **Users**.
2. Select the appropriate user from the listing.
3. Click **Change Password**.

   The **Set Password** page appears. The selected user appears in the **New Password** box.
4. Enter a password in the **New Password** and **Retype New Password** fields. For information on valid passwords, see *Passwords*.

   The system verifies the values entered in both fields match.

5. Click **Continue**.
6. Select **Administration** > **Users** to return to the User Administration page.

The password has been updated in the database and takes effect the next time the user attempts to log in to the user interface.

Setting a password from the System Login page

Use this procedure to change a existing, non-administrative user's password on login.

Note: This procedure is for non-administrative users. For information about how an administrative user can set a password, see *Setting a password from the Users Administration page*.

1. Select **Change password** checkbox on the **System Login** page.
2. Enter the user name and password.
3. Click **Login**.
4. Enter a password in the **New Password** and **Retype New Password** fields. For information on valid passwords, see *Passwords*.

   The system verifies the values entered are valid and that both fields match.
5. Click **Continue**.
   The password has been updated in the database, which takes effect the next time the user attempts to log in to the user interface.

You have now completed this procedure.

Configuring the expiration of a password

Use this procedure to change the variable that controls the length of time for password expiration:

1. Select **Administration** > **General Options**.
2. Locate **Password Expiration** in the **Variable** column.
3. Enter an integer in the **Value** column. The integer indicates the number of days that elapse before the password expires. To disable password expiration, enter **0**.
4. Click **OK** or **Apply** to submit the information.

The password expiration variable is changed to the new value.

Groups Administration

The **Groups Administration** page enables you to create, modify, and delete user groups.

A group is a collection of one or more users who need to access the same set of functions. Permissions are assigned to the group for each application function. All users assigned to the same group have the same permissions for the same functions. In other words, you cannot customize permissions for a user within a group.

You can assign a user to multiple groups. You can add, delete, and modify groups except for the *Pre-defined user and group* that come with the system.

The default group, **admin**, provides access to all GUI options and actions on the GUI menu. You can also set up a customized group that allows administrative users in this new group to have access to a subset of GUI options/actions. Additionally, you can set up a group for non-administrative users, with restricted access to even more GUI options and actions.

For non-administrative users, a group with restricted access is essential. To prevent non-administrative users from setting up new users and groups, be sure **User** and **Group** in the Administration Permissions section are unchecked. Removing the check marks from the Global Action Permissions section does not prevent groups and users from being set up. The following figure displays these sections of the **Group Administration** page.

Note: When setting up users for SOAP provisioning request validation, it is recommended a separate non-administrative group be set up for these users.

Permissions:

Resource	View	Insert	Edit	Delete	Manage
Global Action Permissions	☐	☐	☐	☐	☐
Administration Permissions	☐	☐	☐	☐	☐
General Options	☐		☐		
Users	☐	☐	☐	☐	☐
Groups	☐	☐	☐	☐	
Sessions	☐			☐	
Certificate Management	☐	☐	☐	☐	
Authorized IPs	☐	☐	☐	☐	
SFTP Users	☐	☐	☐	☐	
Software Versions	☐				
ISO Deployment	☐		☐		☐
Software Upgrade	☐		☐		☐
Remote LDAP Authentication	☐	☐	☐	☐	
Remote SNMP Trapping	☐		☐		
Remote Export Server	☐	☐	☐	☐	☐
DNS Configuration	☐		☐		
Licenses	☐	☐			

Figure 13: Global Action and Administration Permissions

Each permission option check box on the **Groups Administration** page corresponds to a menu option on the GUI main menu or a submenu. If a check box is checked for a group, the group has access to this option on the menu. If a check box is not checked, the group does not have access to this option, and the option is not visible on the GUI menu.

These check boxes are grouped according to the main menu's structure; most folders in the main menu correspond to a block of permissions. The exceptions to this are the permission option check boxes in the Global Action Permissions section.

The Global Action Permissions section allows you to control all insert (**Global Data Insert**), edit (**Global Data Edit**), and delete (**Global Data Delete**) functions on all GUI pages (except User and

Group). For example, if the **Network Elements** check box is selected (in the Configurations Permissions section), but the **Global Data Insert** checkbox is not selected, the users in this group cannot insert a new Network Element.

By default, all groups have permissions to view application data and log files.

Pre-defined user and group

The following user account and group are delivered with the system and cannot be deleted or modified.

Table 11: Pre-Defined User and Group

User	Group	Description
guiadmin	admin	Full access (read/write privileges) to all functions including administration functions.

OAM Groups Administration permissions

This table describes the OAM groups administration permissions.

Table 12: OAM Groups Administration Permissions

Permission	Description
Global Action Permissions	
Global Data View	Grants permission to view data in database tables.
Global Data Insert	Grants permission to insert or add data to database tables.
Global Data Edit	Grants permission to edit or modify data in database tables.
Global Data Delete	Grants permission to delete data from database tables.
Global Data Manage	Grants permission to manage data in database tables.
Administration Permissions	
General Options	Grants permission to configure global options such as: • last login expiration • maximum consecutive failed login attempts • password history • maximum records per page • password expiration • configuration of the login message • configuration of the welcome message
Users	Grants permission to set up new users.
Groups	Grants permission set up user groups.
Sessions	Grants permission to view and delete sessions information.
Certificate Management	Grants permission to view, insert, edit and delete SSO certificates.

Permission	Description
Authorized IPs	Grants permission to insert and delete authorized IP addresses.
SFTP Users	Grants permission to view, insert, edit and delete SFTP Users.
Software Versions	Grants permission to view software version data.
ISO Deployment	Grants permission to transfer ISO files to be used in server installations and upgrades.
Software Upgrade	Grants permission to prepare, initiate, monitor, and complete server software upgrades.
Remote LDAP Authentication	Grants permission to view, insert, edit and delete LDAP Authentication.
Remote SNMP Trapping	Grants permission to view and edit SNMP Trapping.
Remote Export Server	Grants permission to view, insert, edit, delete and manage remote export servers.
Configuration Permissions	
Network Elements	Grants permission to insert, edit, delete, lock or unlock Network Elements.
Resource Domains	Grants permission to view, insert, edit, and delete Resource Domains.
Servers	Grants permission to insert new servers or delete servers from the topology.
Services	Grants permission to insert, edit and delete new services in the topology.
Server Groups	Grants permission to group provisioned servers by role, function, and redundancy model.
Places	Grants permission to view, insert, edit, and delete Places.
Networks	Grants permission to insert, edit, and delete new networks in the topology.
DSCP	Grants permission to view, insert, edit, and delete DSCP data.
Network Devices	Grants permission to insert, edit, and delete new network devices in the topology.
Network Routes	Grants permission to insert, edit, and delete new network routes in the topology.
Alarms & Events Permissions	
View Active Alarms	Grants permission to view active alarms.
View Event History	Grants permission to view alarm and event history.
SNMP Trap Log	Grants permission to view SNMP trap log.
Security Log Permissions	

Permission	Description
View Security Log	Grants permission to view security logs from all configured servers.
Status & Manage Permissions	
Network Elements	Grants permission to view the status of Network Elements, as well as manage Customer Router Monitoring.
Servers	Grants permission to stop, reboot, and restart configured servers.
HA	Grants permission to view detailed HA status.
Database	Grants permission to disable provisioning to servers, inhibit database replication, perform backups, compare a database to an archive, and restore a database.
KPIs	Grants permission to view KPIs for all configured servers.
Processes	Grants permission to view details about server processes.
Active Tasks	Grants permission to view details about long running tasks.
Scheduled Tasks	Grants permissions to view details about scheduled tasks.
Files	Grants permission to display the file list for a network entity.
Measurements Permissions	
Report	Grants permission to create and export measurement reports.

IPFE Group Administration permissions

Table 13: IPFE Configuration Permissions describes the IP Front End (IPFE) Group Administration permissions.

Table 13: IPFE Configuration Permissions

Permission	Description
Options	Allows a user to create, edit, view, and delete IPFE Options
Target Sets	Allows a user to create, edit, view, and delete Target Sets and IP List TSAs

Communication Agent Group Administration permissions

Table 14: Communication Agent Configuration Permissions and *Table 15: Communication Agent Maintenance Permissions* describe the Communication Agent (ComAgent) Group Administration permissions.

Table 14: Communication Agent Configuration Permissions

Permission	Description
Remote Servers	Allows a user to create, edit, view, and delete Remote Servers
Connection Groups	Allows a user to create, edit, view, and delete Connection Groups

Permission	Description
Routed Services	Allows a user to create, edit, view, and delete Routed Services

Table 15: Communication Agent Maintenance Permissions

Permission	Description
Show Connection Status	Allows a user to display Connection Status
Change Connection Status	Allows a user to change Connection Status
Show Routed Services Status	Allows a user to display Routed Services Status
Show HA Services Status	Allows a user to display HA Services Status

DSR Diameter Group Administration permissions

The following tables describe the DSR Diameter Group Administration permissions:

Table 16: Diameter Configuration Permissions

Permission	Description
Local Nodes	Allows a user to create, edit, view, and delete Local Nodes
Peer Nodes	Allows a user to create, edit, view, and delete Peer Nodes
Connection Configuration Sets	Allows a user to create, edit, view, and delete Connection Configuration Sets
Capacity Configuration Sets	Allows a user to create, edit, view, and delete Capacity Configuration Sets
Connections	Allows a user to create, edit, view, and delete Connections
Route Groups	Allows a user to create, edit, view, and delete Route Groups
Route Lists	Allows a user to create, edit, view, and delete Route Lists
Peer Routing Rules	Allows a user to create, edit, view, and delete Peer Routing Rules
Egress Throttle Groups	Allows a user to create, edit, view, and delete Egress Throttle Groups
Reroute on Answer	Allows a user to define sets of Diameter Application Ids and Result Code AVP values that trigger Request message rerouting when an Answer response is received from a peer
Application Routing Rules	Allows a user to create, edit, view, and delete Application Routing Rules
System Options	Allows a user to view and edit System Options
DNS Options	Allows a user to view and delete DNS Options
Application Ids	Allows a user to create, edit, view, and delete Application Ids

Permission	Description
CEX Configuration Sets	Allows a user to create, edit, view, and delete CEX Configuration Sets
Message Priority Configuration Sets	Allows a user to create, edit, view, and delete Message Priority Configuration Sets
Egress Message Throttling Configuration Sets	Allows a user to create, edit, view, and delete Egress Message Throttling Configuration Sets
Peer Route Tables	Allows a user to create, edit, view, and delete Peer Route Tables and Peer Routing Rules
Routing Option Sets	Allows a user to create, edit, view, and delete Routing Option Sets
Pending Answer Timers	Allows a user to create, edit, view, and delete Pending Answer Timers
CEX Parameters	Allows a user to create, edit, view, and delete CEX Parameters
Command Codes	Allows a user to create, edit, view, and delete Command Codes
Capacity Summary	Allows a user to view the Capacity Summary
MP Profiles	Allows a user to create, edit, view, and delete MP Profiles
Profile Assignments	Allows a user to create, edit, view, and delete DA-MP Profile Assignments
Message Copy Configuration Sets	Allows a user to create, edit, view, and delete Message Copy Configuration Sets
Reserved MCC Ranges	Allows a user to create, edit, view, and delete MCC Ranges
Application Route Tables	Allows a user to create and delete Application Route Tables; and view and edit Rules in the tables
Trusted Network Lists	Allows a user to create, edit, view, and delete Trusted Network Lists for Topology Hiding
Path Topology Hiding Configuration Sets	Allows a user to create, edit, view, and delete Path Topology Hiding Configuration Sets
S6a/S6d HSS Topology Hiding Configuration Sets	Allows a user to create, edit, view, and delete S6a/S6d HSS Topology Hiding Configuration Sets
MME/SGSN Topology Hiding Configuration Sets	Allows a user to create, edit, view, and delete MME/SGSN Topology Hiding Configuration Sets
Protected Networks	Allows a user to create, edit, view, and delete Protected Networks for Topology Hiding
Connection Capacity Dashboard	Allows a user to view the Connection Capacity Dashboard
Import	Allows a user to provision the DSR system from an ASCII CSV (Comma Separated Values) text file
Export	Allows a user to "export" the DSR configuration data into a CSV (Comma Separated Values) file of the same format

Table 17: Diameter Maintenance Permissions

Permission	Description
Route Lists	Allows a user to view priority, capacity, Route Group assignment, and status information for Route Lists
Connections	Allows a user to view Initiator, Local Node, Peer Node, MP Server Hostname, Application ID, Admin State, Operational Status, and Operational Reason information for Connections. This permission also provides the ability to enable and disable Connections.
Egress Throttle Groups	Allows a user to view Admin State, Operational Status, Operational Reason, and other information for Egress Throttle Group Rate Limiting and Pending Transaction Limiting
Route Groups	Allows a user to view Peer Node assignment, capacity, percent, and status information for Route Groups
Peer Nodes	Allows a user to view connection, status, and operation reason information for Peer Nodes
Applications	Allows a user to view status for DSR Applications
DA-MP Status	Allows a user to view status for DA-MPs

Table 18: Diameter Mediation Permissions

Permission	Description
Rule Templates	Allows an operator to define Mediation Rule Templates
Enumerations	Allows an operator to view and edit Mediation Enumerations
Triggers	Allows an operator to view and edit Mediation Triggers
State & Properties	Allows an operator to set the state of a Rule Template and configure settings for a Rule Template
AVP Dictionary	Allows an operator to view the AVPs familiar to the system, add new AVPs, and change the definition of a basic AVP
Vendors	Allows an operator to view and add new vendors
Rule Sets	Allows an operator to define Mediation Rule Sets

Table 19: Diameter Diagnostics Permissions

Permission	Description
Test Connections Diagnose	Allows diagnosis of test messages on a test connection
Test Connections Report	Allows reporting of diagnostic results
MP Statistics (SCTP)	Allows network operators to retrieve per MP SCTP statistics for MPs hosting Diameter connections.

Policy DRA Group Administration permissions

Table 20: Policy DRA Configuration Permissions and *Table 21: Policy DRA Maintenance Permissions* describe the Policy DRA Group Administration permissions.

The **Administration** > **Group** GUI page displays permissions check boxes for all Policy DRA pages, both NOAM and SOAM pages.

- All of the permissions can be updated only on the NOAM **Administration** > **Group** page.
- All of the permissions can be viewed but not updated on the SOAM **Administration** > **Group** page.

Table 20: Policy DRA Configuration Permissions

Permission	Description
PCRFs	Allows a user to create, edit, view, and delete PCRFs
Binding Key Priority	Allows a user to assign Binding Key Priorities to Binding Key Types
Topology Hiding	Allows a user to create, edit, view, and delete Policy Clients from which PCRF names should be hidden
PCRF Pools	Allows a user to create multiple PCRF Pools, which are selected using the combination of IMSI and Access Point Name (APN)
PCRF Pool To PRT Mapping	Allows a user to view the list of PCRF Pools or Sub-Pools configured at the NOAMP and allows each to be mapped to a Peer Routing Table to be used when a new binding is created for the PCRF Pool
PCRF Sub-Pool Selection Rules	Allows a user to create, edit, and delete rules for selection of a PCRF Sub-Pool for a given PCRF Pool and Origin-Host value
Network-Wide/Site Options	Allows a user to set network-wide Policy DRA configuration from the NOAM
Options	Allows a user to view and edit Network-Wide Options and Site Options
Error Codes	Allows a user to view and edit Result Codes to be returned for Policy DRA error conditions
Alarm Settings	Allows a user to view and edit Alarm Settings
Congestion Options	Allows a user to view and edit Congestion Options

Table 21: Policy DRA Maintenance Permissions

Permission	Description
Policy SBR Status	Allows a user to view status for Policy SBRs
Binding Key Query	Allows a user to enter a Binding Key Type and Binding Key search value, and search for the specified Binding Key data

RBAR Group Administration permissions

Table 22: RBAR Configuration Permissions describes the Range-Based Address Resolution (RBAR) Group Administration permissions.

Table 22: RBAR Configuration Permissions

Permission	Description
Applications	Allows a user to create, edit, view, and delete Applications
Address Resolutions	Allows a user to create, edit, view, and delete Address Resolutions
Address Tables	Allows a user to create, edit, view, and delete Address Tables
Addresses	Allows a user to create, edit, view, and delete Addresses
Destinations	Allows a user to create, edit, view and delete Destinations
Exceptions	Allows a user to create, edit, view, and delete Exceptions
System Options	Allows a user to view and edit RBAR System Options

FABR Group Administration permissions

Table 23: FABR Configuration Permissions describes the Full Address-Based Resolution (FABR) Group Administration permissions.

Table 23: FABR Configuration Permissions

Permission	Description
Applications	Allows a user to create, edit, view, and delete Applications
Exceptions	Allows a user to create, edit, view, and delete Exceptions
Default Destinations	Allows a user to create, edit, view and delete Default Destinations
Address Resolutions	Allows a user to create, edit, view, and delete Address Resolutions
System Options	Allows a user to view and edit RBAR System Options

Service Broker Group Administration permissions

This table describes elements of the **Group Administration** page.

Table 24: EAGLE XG NP Query Router

Permission	Description
Configuration	Allows access to Service Broker configuration settings
Query	Allows users to query NP Query Router configuration tables
Maintenance	Allows access to maintenance tools including enabling/disabling NP Query Router

SSR Group Administration permissions

This table describes the SSR group administration permissions.

Table 25: SSR Configuration Permissions

Permission	Description
POPs	Grants permission to view, insert, and delete POPs.
Domains	Grants permission to view, insert, and delete Domains.
Option Profiles	Grants permission to view, insert, edit, and delete Option Profiles.
Defaults	Grants permission to edit default options.
SUA Signaling Gateways	Grants permission to view, insert, edit, and delete SUA Signaling Gateways.
DNS	Grants permission to view and edit DNS servers, and to view, insert, edit, and delete DNS cache pre-load records.
SIP Server	Grants permission to edit TCP and SCTP options.
CAPM	Grants permission to view, insert, and delete CAPM definitions and enumerations.
Internal Components	Grants permission to view, insert, delete, and view Internal Components.

Table 26: SSR Routing Permissions

Permission	Description
Route Service	Grants permission to view, insert, edit, and delete Route Services.
Routing Profile	Grants permission to view, insert, edit, and delete Routing Profiles.
Rules	Grants permission to view, insert, edit, and delete Routing Rules.
RS Prefix Screening	Grants permission to view, insert, edit, and delete RS Prefix Screening
NP Prefix Screening	Grants permission to view, insert, edit, and delete NP Prefix Screening.
CAPM Tasks	Grants permission to view, insert, edit, and delete CAPM Routing Task rules.

Table 27: SSR Routing Permissions

Permission	Description
Clusters	Grants permission to view, insert, edit, and delete Clusters and to assign servers to Clusters and Clusters to MPs.
Servers	Grants permission to view, insert, edit, and delete servers for Load Balancing Clusters.

Permission	Description
Routing Policies	Grants permission to view, insert, edit, and delete Load Balancer Routing Policies.
Monitoring	Grants permission to set Load Balancer monitoring options and to monitor Load Balancer servers.

Table 28: SIP Timer Permissions

Permission	Description
Sets	Grants permission to view, insert, edit, and delete SIP Timer Sets.

Table 29: SSR Maintenance Permissions

Permission	Description
SUA Connection Status	Grants permission to view the status of SUA Connections.
Selective Logging	Grants permission to view and provision selective logging rules and rule assignments, to activate or deactivate selective logging, and to view and save logs to a file.
DNS Cache	Grants permission to view and flush the DNS cache and to add and delete DNS cache entries
IP Blacklist	Grants permission to view and flush the IP Blacklist and to add an IP Blacklist entry.
Heartbeat List	Grants permission to view and flush the Heartbeat List and to add and delete Heartbeat List entries.
TCP Connections	Grants permission to view the status of TCP connections.
SCTP Associations	Grants permission to view the status of SCTP Associations.
SSR Configuration status	Grants permission to view the status of SSR Configuration.

SS7/Sigtran Group Administration permissions

This table describes the SS7/Sigtran group administration permissions. The SS7/Sigtran group administration permissions are only available in products that use the SS7/Sigtran plug-in.

Table 30: SS7/Sigtran Configuration Permissions

Permission	Description
Adjacent Servers	Grants permission to view, insert, and delete Adjacent Servers.
Adjacent Server Groups	Grants permission to view, insert, edit, and delete Adjacent Server Groups.
Local Signaling Points	Grants permission to view, insert, edit, delete, and generate a report on Local Signaling Points.

Permission	Description
Remote Signaling Points	Grants permission to view, insert, delete, generate a report, and view status on Remote Signaling Points.
Remote MTP3 Users	Grants permission to view, insert, delete, and view the status of Remote MTP3 Users.
Link Sets	Grants permission to view, insert, delete, generate a report, and view status of Link Sets.
Associations	Grants permission to view, insert, edit, delete, generate a report, and view status of Associations. Grants permission to view, insert, edit, and delete an Association Configuration Set.
Links	Grants permission to view, insert, delete, generate a report, and view status of a Link.
Routes	Grants permission to view, insert, edit, delete, generate a report, and view status of Routes.
SCCP Options	Grants permission to view and edit SCCP Options.
MTP3 Options	Grants permission to view and edit MTP3 Options.
M3UA Options	Grants permission to view and edit MTP3 Options.
Local Congestion Options	Grants permission to view Local Congestion Options.
Local SCCP Users	Grants permission to view, insert, delete, generate a report, and view status of the Local SCCP Users.

Table 31: SS7/Sigtran Maintenance Permissions

Permission	Description
Local SCCP Users	Grants permission to view the status of Local SCCP Users and to enable and disable LSUs.
Remote Signaling Points	Grants permission to view the status of Remote Signaling Points and to reset the network status of routes.
Remote MTP3 Users	Grants permission to view the status of Remote MTP3 Users and to reset the subsystem and point code status.
Link Sets	Grants permission to view the status of Link Sets.
Links	Grants permission to view the status of Links and to enable and disable Links.
Associations	Grants permission to view the status of Associations and to enable, disable, and block Associations.

Table 32: SS7/Sigtran Command Line Interface

Permission	Description
Command Import	Grants permission to use the Command Import page.

UDR Group Administration permissions

The following table describes the UDR Group Administration permissions. Note that for the main UDR menu options (**Configuration**, **Subscriber Entity Configuration**, and **Maintenance**) the user can turn on or off some or all functionality (view, insert, edit, delete, or manage) for GUI pages accessed from each of these menus. There is also a **Global Action Permissions** row that allows you to control this functionality for all GUI pages on the UDR menu.

Table 33: UDR Group Administration Permissions

Permission Group	Description
UDR Configuration Permissions	
Provisioning Options	Allows a user to view or edit provisioning option settings.
Ud Client Options	Allows a user to view or edit Ud client option settings.
Ud Remote Server Configuration	Allows a user to view or change the Ud remote server configuration settings.
UDRBE Options	Allows a user to view or edit UDRBE option settings.
Provisioning Connections	Allows a user to view, add, edit, or delete provisioning connections.
Ud Client Key Details	Allows a user to view or edit Ud client key details.
Ud Client Attribute Map SEC	Allows a user to view, add, edit, or delete Ud client attribute mapping entries.
Subscribing Client Permissions	Allows a user to view, add, or delete subscribing client permissions.
Auto Enrollment Options	Allows a user to view or edit auto enrollment option settings.
Auto Enrollment Blacklist	Allows a user to view, add, or delete auto enrollment blacklist entries.
Command Log Export Options	Allows a user to view or edit command log export option settings.
Pool Spanning Options	Allows a user to view or edit Pool Spanning Option settings.
Pool Network Configuration	Allows a user to view, add, or delete pool network configurations.
UDR Key Range	Allows a user to view, add, or delete key ranges.
Subscriber Query and Provisioning	Allows a user to view, add, edit, or delete a subscriber/pool profile or entity.
Create Profile/Add Entity	Allows a user to view or add a subscriber/pool profile or entity.
UDR SEC Permissions	
Entity	Allows a user to view, add, edit, or delete an entity.
Interface Entity Map	Allows a user to view, add, or delete an interface entity map.
Entity Field Set	Allows a user to view, add, edit, copy, or delete an entity field set.
Entity Base Field Set	Allows a user to view, add, edit, copy, or delete an entity base field set.

Permission Group	Description
Entity Definition	Allows a user to view, add, edit, or delete an entity field set.
UDR Maintenance Permissions	
Connections	Allows a user to view current external connections.
Command Log	Command Log: Allows a user to view command log history.
Import Status	Allows a user to view the status of import operations.
Export Schedule	Allows a user to view, add, edit, or delete an export schedule.
Export Status	Allows a user to view the status of exports.
Subscribing Client Availability	Allows a user to view the status of subscribing clients.
Quota Reset Scheduler Tasks	Allows a user to view, add, edit, delete, or manage quota reset scheduler tasks.
Db Auditor	Allows a user to view or manage the database auditor.
Command Log Export Status	Allows a user to view the status of log exports.
Ud Client Connection Status	Allows a user to view or manage the Ud client connection status.

Adding a group

Use this procedure to add a new group:

1. Select **Administration** > **Access Control** > **Groups**.
2. Click **Insert**.
3. Enter a unique name in the **New Group Name** field, and optionally, in the **Description** field, enter text to describe the group. When setting up a group for the purpose of SOAP request validation, use a name to easily identify this purpose, such as SOAP Users.
4. To allow View, Insert, Edit, Delete or Manage actions on all pages accessed from the GUI, selectively check mark each action in the **Global Action Permissions** row.

   Checks appear next to each page under that action.
5. Check mark the remaining menu permissions to which you want this group to have access.

   Note: For a group created for SOAP request validation, no permissions need to be check marked.

   Note: To quickly select all permissions in a given section, place a check beside the desired section under the desired action. For example, if the group needs only view access for the **Alarms and Events** section, place a single check next to **Alarms and Events Permissions** and under the **View** action. For more information on the options displayed on the Group page, see *Groups Administration*.
6. Perform one of the following actions:
   - Click **Apply**.

     A confirmation message appears at the top of the **Add Groups** page to inform you that the new group has been added to the database. To close the **Add Groups** page, click **Cancel**.
   - Click **OK**.

Note: The **Group Members** pane at the bottom of the page displays the entry **None** for a new group. If you would like to add users to the new group now, double-click **None** to launch the **Add User** page. See *Insert New User elements* for more information.

The new group is added to the database.

Viewing members of a group

Use this procedure to view a list of users assigned to a group:

1. Select **Administration** > **Access Control** > **Groups**.
2. Scroll down as needed to bring the desired group into the viewing area.

   The **Users** pane displays all users belonging to that group.

A list of group members is displayed.

Modifying a group

You cannot modify a predefined group provided during installation. See *Pre-defined user and group* for more information on this topic.

Use this procedure to modify a group:

1. Select **Administration** > **Access Control** > **Groups**.
2. Select the desired group from the **Groups** administration page.
3. Click **Edit**. For information on permission options, see *OAM Groups Administration permissions*.
4. Modify the group permissions as needed. For information on permission options, see *OAM Groups Administration permissions*.
5. Click **OK** or **Apply**.

   Clicking **OK** returns you to the **Groups** administration page and clicking **Apply** leaves you in the **Groups** edit page but applies the changes.

The modifications are written to the database. The main GUI menu of the affected user(s) is not changed until the user logs out and back in to the system, or the user refreshes the menu (using the web browser's Refresh function). The change in accessibility to menu options for affected user(s) takes effect immediately.

Deleting a group

Note: The system does not allow any user to delete a predefined group provided during installation. See *Pre-defined user and group* for more information on this topic.

Use this procedure to delete a group:

1. Select **Administration** > **Access Groups** > **Groups**
2. Select the desired group from the **Groups** administration page and take note of any users presented in the **Users** pane.

   Note: The **Users** pane lists all users associated with the group. If there are users associated with the group, you must delete the users or assign them to another group before deleting the group. See *Changing a user's assigned group*.

3. Once all users have been cleared from the **Users** pane click **Delete**.
4. Click **OK** to delete the group.
   A status box displays the results of the action.

The group is removed from the database.

Generating a group report

A group report can be generated from the **Groups** administration page. This type of report provides information about a groups global action and administrative permissions.

1. Select **Administration** > **Access Control** > **Groups**.
2. Select one or more groups.

   Note: If no groups are selected then all groups appear in the group report.

3. Click **Report**.
   The group report is generated. This report can be printed or saved to a file.
4. Click **Print** to print the report or **Save** to save the report to a file.

Sessions Administration

The **Sessions Administration** page enables the administrative user to view a list of current user sessions and to stop user sessions that are in progress. This function does not disable the user's login account. To end a user session that is in progress, delete the user session. For other methods of controlling user access to a system, see *Enabling or disabling a user account* and *Deleting a user*.

Sessions Administration elements

This table describes elements of the **Sessions Administration** page.

Table 34: Sessions Administration Elements

Element	Description
Sess ID	Shows a system-assigned ID for the session.
Expiration Time	Shows the date and UTC time the session expires.
Login Time	Displays the UTC login time.
User	Displays the **Username** of the user logged in to the session.
Group	Displays the **Group** to which the user belongs.
TZ	Displays the user time zone: UTC.
Remote IP	Displays the IP address of the machine from which the user connected to the system.

Viewing user sessions

Use this procedure to view a list of user sessions:

Select **Administration** > **Access Control** > **Sessions**.

The **Sessions** page lists all active sessions on the system.

Deleting user sessions

Use this procedure to delete a user session.

Note: You cannot delete your own session.

1. Select **Administration** > **Access Control** > **Sessions**.
2. Click to select the appropriate session from the table.

   To distinguish the appropriate session, locate either the User or the IP address found in the corresponding pane. For more information see *Sessions Administration elements*.

   Note: You can select multiple rows to delete at one time. To select multiple rows, press and hold **Ctrl** as you click to select specific rows.
3. Click **Delete**.

   The session is deleted, and the user is no longer logged in to the system. The next time the user attempts to perform an action, the user is redirected to the **System Login** page.

Certificate Management

The Certificate Management feature allows users to configure certificates for:

- HTTPS/SSL - allows secure login without encountering messages about untrusted sites
- LDAP (TLS) - allows the LDAP server's public key to encrypt credentials sent to the LDAP server
- TLS/DTLS over TCP/SCTP Transport - allows transport layer security protocols and encryption on a per connection basis at the application layer. For example, DSR local and peer node connections
- Single Sign-On (SSO) - allows users to navigate among several applications without having to re-enter login credentials
- Certificate Authority (CA) - A digital certificate provided by a trusted source used to make secure connections between a client and server.

When setting up Certificate Management, you must first assign a system domain name for the DNS configuration before importing any certificates. For more information, see *DNS Configuration*.

After assigning a system domain name, you must configure the LDAP authentication servers used for single sign on. For more information, see *LDAP Authentication*.

Configuring single sign-on zones

The following sections outline the information necessary to configure the single sign-on zones. This includes zone elements and procedures on configuring, updating, viewing and deleting zone information.

Single sign-on zone elements

Establishing the single sign-on zone

Re-establishing the single sign-on local zone

Deleting a single sign-on zone

Generating a Single Sign-On Zones Report

Single sign-on zone elements

The following element is used when configuring single sign-on zones:

Table 35: Single Sign-On Zone Element

Element	Description	Data Input Notes
Zone Name	Name of the SSO-compatible remote zone	Range: A to Z, a to z, 0-9 and periods - maximum 15 characters

Establishing the single sign-on zone

Before configuring a single sign-on zone, the single sign-on domain name must be configured.

Use this procedure to configure the single sign-on zone:

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Select **Establish SSO Zone** at the bottom of the table.
3. Enter a **Zone Name** that consists of 1-15 characters.
4. Select **Apply** to save the changes you have made and remain on this screen, or select **OK** to save the changes and return to the Zones page.

The new single sign-on zone is added to the database.

Re-establishing the single sign-on local zone

Re-establishing the local zone renders all of the certificates for this zone obsolete. After re-establishing the local zone, you have to re-distribute the certificate for this zone to all the other remote zones to re-establish the trusted relationship and re-enable single sign-on between the zones.

Use this procedure to re-establish the single sign-on local zone:

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Select the local zone from the listing.
3. Click **Reestablish Local Zone**.
   A confirmation message appears stating that re-establishing a local zone invalidates configured SSO key-exchanges involving this machine.
4. Select **OK** to continue

The local zone is re-established in the database.

Deleting a single sign-on zone

Use this procedure to delete the single sign-on remote or local zone:

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Select the appropriate zone from the table listing.
3. Click **Delete**.
4. Click **OK** to delete the zone.

The zone is deleted from the database and no longer appears in the table listing.

Generating a Single Sign-On Zones Report

Use this procedure to generate a single sign-on zones report:

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Click to select the zone for which you want to create a report.

   Note: To select multiple server groups, press and hold **Ctrl** as you click to select specific rows. Alternatively, if no servers are selected then all server groups appear in the report.
3. Click **Report**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

Create CSR

The Certificate Management feature allows users to build certificate signing requests (CSRs).

A Certificate Signing request is a block of encrypted text that is generated on the single sign-on server. It contains information that is included in your certificate such as your organization name, common name (domain name), locality, and country.

Create CSR elements

The following elements are used when creating a CSR:

Table 36: Create CSR Elements

Element	Description	Data Input Notes
Country	The 2-letter country code where the entity being described lives.	Range: A to Z
State or Province	The state or province (full name) where the entity being described lives.	Range: 1-100 character long string. Allowed characters are A-Z, a-z, spaces, and hyphens.
Locality	The locality name (e.g., city) of the entity being described.	Range: 1-100 character long string. Allowed characters are A-Z, a-z, spaces, and hyphens.
Common Name	The common name of the entity being described. Replacing a certificate marked visible or active results in browser connection errors, which may require a reload or restart of the browser to restore connectivity. The list includes only those entities that do not already have an associated certificate.	Range: 1-100 character long string. Allowed characters are A-Z, a-z, spaces, and hyphens. **Note:** Common Names are case insensitive and must be unique.
Organization	The name of the organization to which the entity belongs.	Range: 1-100 character long string. Allowed characters are A-Z, a-z, spaces, and hyphens.
Organizational Unit	The organizational unit name (e.g., section) to which the entity belongs.	Range: 1-100 character long string. Allowed characters are A-Z, a-z, spaces, and hyphens.
Email Address	The email address of the entity being described.	Range: 1-100 character long string. Allowed characters are A-Z, a-z, 0-9, '.', and '@'

Creating a CSR

The following sections outline the information necessary to create a CSR. A CSR is a certificate signing request, and is sent from an applicant to a certificate authority in order to apply for a digital identity certificate.

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Click **Create CSR**.
3. Select a two-character **Country** code for the entity.

   For more information about any field on this page, see CSR elements.
4. Select the full name of the **State or Province**.
5. Select the **Locality** name, for example, the city.
6. Select the **Common Name** for the entity being included in the CSR.
7. Select the entity **Organization**.
8. Select the entity **Organizational Unit** for the entity being included in the CSR.
9. Select the entity **Email Address**.
10. Click **Generate CSR** to submit the information.
11. Click **Back** to return to the Certificate Management page.

Import Certificate

The Certificate Management feature allows users to import certificates in cases where this is preferred over configuring certificates. All imported certificates are appended to the Certificate Management table.

Note: Maximum allowed TLS/DTLS certificates is 1000.

Import Certificate elements

The following elements are used when importing a certificate:

Table 37: Import Certificate Elements

Element	Description	Data Input Notes
X.509 Certificate	PEM encoded X.509 certificate	Range: 2048 characters **Note:** For SSL (TLS/DTLS) certificates, valid range is 1024-2048 characters
Private Key	PEM encoded Private Key	Range: 2048 characters **Note:** For SSL (TLS/DTLS) keys, valid range is 1024-2048 characters
Passphrase	The passphrase used to protect the Private Key	

Importing a Certificate

The following steps outline the procedures necessary to import a certificate.

1. Select **Administration** > **Access Control** > **Certificate Management**.

2. Click **Import**.
3. Enter the **X.509 Certificate**.

   For more information about any field on this page, see Import Certificate elements.
4. Enter the **Private Key**.
5. Enter the **Passphrase**.
6. Click **OK** to import the certificate.

Bulk Importing of Certificates

The following steps outline the procedures necessary to bulk import certificates by uploading a valid XML certificates file from a local workstation.

Note: The maximum allowed TLS/DTLS certificates is 1000. Attempting to import more than 1000 TLS/DTLS certificates, including existing certificates, results in an error message.

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Click **Browse**.
3. Navigate to the location of the XML certificates file on the local workstation. Select the file then click **Open**.

   The browsers upload window clears and the file name is presented next to the **Browse** button.
4. Click **Upload File**.

   During the upload process, checks are performed to verify a valid file extension and whether there is invalid data in the XML file being uploaded.

Updating a Certificate

The following steps outline the procedures necessary to update a certificate.

1. Select **Administration** > **Access Control** > **Certificate Management**
2. Select the appropriate certificate from the table listing
3. Click **Update**.
4. Update the **X.509 Certificate**.
5. Click **OK** to update the certificate.

Deleting a Certificate

Use this procedure to delete a certificate:

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Select the appropriate certificate from the table listing.
3. Click **Delete**.
4. Click **OK** to delete the certificate.

The certificate is deleted from the database and no longer appears in the table listing.

Exporting Certificates

The following steps outline the procedures necessary to export certificates.

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Select one or more certificates for export.

   If no certificates are selected then all of the configured certificates shall be exported.

3. Click **Export**.
4. Choose the appropriate action presented in the **Open File** screen.

   Depending on the action selected, the file opens in the preferred application or be saved to the local workstation.

Generating a Certificate Report

Use this procedure to generate a certificate report:

1. Select **Administration** > **Access Control** > **Certificate Management**.
2. Click to select the certificate for which you want to create a report.

   Note: To select multiple server groups, press and hold **Ctrl** as you click to select specific rows. Alternatively, if no servers are selected then all server groups appear in the report.

3. Click **Report**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

Authorized IPs

IP addresses that have permission to access the GUI can be added or deleted on the **Authorized IPs** page. If a connection is attempted from an IP address that does not have permission to access the GUI, a notification appears on the GUI.

Note: This feature cannot be enabled until the IP address of the client is added to the authorized IP address table. You must add the IP address of your own client to the list of authorized IPs first before you enable this feature.

Authorized IPs elements

This table describes the elements on the **Authorized IPs** page.

Table 38: Authorized IPs Elements

Element	Description
IP Address	IP address with permission to access the GUI
Comments	Users can insert additional information (up to 64 characters) to describe the server, or the field can be left blank.

Enabling Authorized IPs functionality

Enabling Authorized IPs functionality prevents unauthorized IP addresses from accessing the GUI. Use this procedure to enable the Authorized IPs functionality.

Note: This procedure pertains to GUI access only.

1. Select **Administration** > **Access Control** > **Authorized IPs**.

   Note: This feature cannot be enabled until the IP address of the client is added to the authorized IP address table. You must add the IP address of your own client to the list of authorized IPs first before you enable this feature.

2. Select the Info box in the upper left corner of the screen and click **Enable**.
   The Authorized IPs functionality is enabled. Only authorized IPs can access the GUI.

Disabling Authorized IPs functionality

Use this procedure to disable the Authorized IPs functionality.

Note: This procedure pertains to GUI access only.

1. Select **Administration** > **Access Control** > **Authorized IPs**.
2. Select the Info box in the upper left corner of the screen and click **Disable**.

Inserting authorized IP addresses

Use this procedure to insert authorized IP addresses.

Note: This procedure pertains to GUI access only.

1. Select **Administration** > **Access Control** > **Authorized IPs**.
2. Click **Insert**.
3. Enter an IP address in the **IP Address Value** field.
4. Enter a comment in the **Comment Value** field.

   Note: This step is optional

5. Do one of the following:
   - Click **OK**.

     The **Authorized IP** page reappears, and the IP address you entered is visible in the table. The IP address is authorized to access the GUI.

   - Click **Apply**.

     The IP address you entered is authorized to access the GUI. You can now enter additional IP addresses. Click **Apply** after each IP address entered. When you have finished entering IP addresses, click **OK** to return to the **Authorized IPs** page. All of the IP addresses you entered are visible in the table.

Deleting authorized IP addresses

Use this procedure to delete authorized IP addresses.

1. Select **Administration** > **Access Control** > **Authorized IPs**.
2. Click to select the IP address you want to delete from the Authorized IP Address table.

   Note: Do not delete your own IP address. If you delete your own IP address, you lose access to the GUI. If this happens, contact the Customer Care Center.

3. Click **Delete**.
4. Click **OK**.
   This deletes the IP address from the table, and the IP address no longer has permission to access the GUI when the feature is enabled.

You have now completed this procedure.

SFTP Users Administration

The SFTP Users feature adds the ability to configure remote access accounts for SFTP access, and provides restricted access through those accounts to the export area of the file management directory to use for exporting MEAL data.

SFTP User elements

This table describes the elements on the SFTP Users page.

Element	Description
Username	The SFTP user name account. Range = Lowercase alphanumeric (a-z, 0-9) string between 5 and 32 characters long.
Permissions	The permissions associated with the account. The user can only access export files that match the assigned permission. Valid permissions are: • Measurements, Alarms and Events • Security Logs • Measurements, Alarms, Events and Security Logs
Comment	Comments about the SFTP user. Range = A string between 1 and 100 characters long.
SSH Key	The SSH public key to be used with this account.

Adding a SFTP User

Use this procedure to add a SFTP user:

1. Select **Administration** > **Access Control** > **SFTP**.
2. Select **insert**.
3. Enter a **Username** to be used to identify the SFTP User.
   For more information about any field on this page, see SFTP User Elements.
4. Select the **Permissions** to be associated with the SFTP user.
5. Enter a **Comment**, if necessary, about the SFTP User.
6. Enter the **SSH Key** to be used with the account.
7. Click **OK** to submit the information and return to the SFTP Administration page, or click **Apply** to submit the information and continue entering additional data.

The new SFTP user information and related settings are saved and activated.

Viewing SFTP Users

Use this procedure to view SFTP user information.

Select **Administration** > **Access Control** > **SFTP**.

The **SFTP Users** page appears. The **SFTP Users** page lists all SFTP options on the system.

Updating SFTP User information

Use this procedure to update SFTP user information:

1. Select **Administration** > **Access Control** > **SFTP Users**.
2. Select the appropriate user from the listing.
3. Click **Edit**.
4. Make the desired updates to the user information.
5. Click **OK** or **Apply** to submit the information.

The SFTP user changes are saved and activated.

Showing SFTP User Logs

A SFTP user access log can be generated. Use this procedure to generate a SFTP user access log.

1. Select **Administration** > **Access Control** > **SFTP**.
2. Highlight a user from the listing and click **Show Logs**.
   The SFTP Users log is generated showing all activity for the user. This report can be printed or saved to a file.
3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.

Deleting a SFTP User

Use this procedure to delete a SFTP user:

1. Select **Administration** > **Access Control** > **SFTP**.
2. Select the appropriate user name from the listing for the SFTP user to delete.
3. Click **Delete**.
4. Click **OK** to delete the user.

The user is deleted from the database and no longer appears in the listing.

Generating a SFTP User report

A SFTP user report can be generated. Use this procedure to generate a SFTP user report.

1. Select **Administration** > **Access Control** > **SFTP**.
2. Click **Report**.

   Note: It is unnecessary to select a particular user, because all users appear in the Users Report.

   The SFTP Users report is generated. This report can be printed or saved to a file.

3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.

Updating SFTP User password settings

Use this procedure to update SFTP user password settings:

1. Select **Administration** > **Access Control** > **SFTP**.
2. Select the appropriate user from the listing and select **Change Password**.
3. Enter the new SFTP password for this user. Confirm the entry by retyping the password.

   Note: Passwords must contain at least three of the following characters to be valid: numeric, lowercase letters, uppercase letters, or a special character.

4. Select **Continue** to save the password information.

The SFTP user password changes are saved and activated.

Software Management

The Software Management options allow you to administer:

- Versions
- Upgrade

For more information, see each individual section.

Versions

The **Versions** page is a report that displays the software release levels for the server. The report can be viewed on the screen, printed, or saved to a file.

Printing and saving the Software Versions report

Use this procedure to print or save the Software Versions report.

1. Select **Administration** > **Software Management** > **Versions**.
2. Click **Print** to print the report.
   A **Print** window appears. Click **OK**.
3. Click **Save** to save the report to a file.

You have now completed this procedure.

Upgrade

The **Upgrade** page is used to perform software upgrades and related functions on in-service servers in a network. In addition to initiating and accepting upgrades, this page provides to ability to perform backups, health checks (checkups), and reporting.

The **Upgrade** menu choice is only available on the NOAM. It includes the Server Group (SG) and Entire Site (ES) tabs.

Note: These instructions provide a generic framework for upgrades. The user should always defer to the application specific upgrade instructions based on each release.

CAUTION

Caution: Contact My Oracle Support and inform them of your upgrade plans prior to beginning this or any upgrade procedure. Before upgrading, go to the My Oracle Support website to acquire the correct upgrade procedure for your product and review any relevant Technical Service Bulletins (TSBs).

Upgrade administration elements

Table 39: Upgrade Administration Elements describes the elements on the **Upgrade** administration page.

Note: There are two tabs on this page: **NO_SG** and **SO_SG1**. The elements in list all elements on both tabs. Only tabs with servers after filtering is applied are displayed. The SOAM server groups indicate which sites are eligible for site upgrade.

Table 39: Upgrade Administration Elements

Element	Description
Hostname	Lists the Hostname of the server.
Upgrade State	Displays the state that allows for graceful upgrade of server without degradation of service. Based on HA Status and Application State. Available states are: • Backup Needed • Backup in Progress • Ready • Pending • Upgrading • Accept or Reject • Failed • Backout Ready
Server Status	Overall server status. Selecting the link displays the full 'Server Status' report for the server.
OAM HA Role	The OAM HA role for this server.[1]
Appl HA Role	The application HA role for the server.
Server Role	Role of this server in the system. Role is configured on the **Configuration** > **Server** page.
Network Element	Lists the Network Element to which the server belongs.

[1] See *HA status elements* for more information

Element	Description
Function	Function of this server in the system. NOAMP and SOAM function are assigned on the **Configuration** > **Server** page. For message processors, function is assigned on the related configuration page.
Application Version	Application version currently installed and running on each server.
Upgrade ISO	The ISO used for the upgrade.
Start Time	The time upgrade started.
Status Message	The current upgrade status message.
Finish Time	The time upgrade finished.
Backup	Initiates backups on a server and seserverrver group basis based on the active server group tab.
Backup All	Initiates backups on a network element basis.
Checkup	Initiates upgrade health checks on a server and server group basis based on the active server group tab. This is enabled for all server group tabs.
Checkup All	Initiates upgrade health checks on a network element basis.
Auto Upgrade	Initiates the upgrade. Two upgrade modes are available; when no servers are selected the button reflects **Auto Upgrade** and initiates a server group automated upgrade based on the active server group tab. When one or more servers are selected, the button toggles to **Upgrade Server** and initiates an upgrade only on the selected server(s).
Accept	Accept upgrade on the selected server(s) in the active server group tab.
Accept All	Displays the network elements topology elements which contain servers in the selected site. Check for each network element whose server upgrades are to be accepted.
Report	Generates a server report. Two report options are available; when no servers are selected a report is generated for all servers in the server group. When one or more servers are selected a report is generated only for the selected servers.
Report All	Generates a report for all servers in all server groups.

Overview of the upgrade procedure

The information in this section provides a general overview of the upgrade process. The user should always defer to the application specific upgrade instructions based on each release.

Follow these general steps when upgrading a server:

1. Backup your server.
2. Upload and verify the ISO image. (Refer to the sections on Uploading a Local File, Deploying an ISO file and Validating an ISO file.)
3. Initiate an upgrade.
4. Accept the upgrade.

The sections that follow contain detailed information and steps for upgrading a server.

CAUTION

Caution: Contact My Oracle Support and inform them of your upgrade plans prior to beginning this or any upgrade procedure. Before upgrading, go to the My Oracle Support website to acquire the correct upgrade procedure for your product and review any relevant Technical Service Bulletins (TSBs).

Backing up full configuration before an upgrade

It is recommended that you back up your server's full configuration before an upgrade. The configuration backup of a server runs in the background, enabling you to continue working while a backup is in process.

Two options are available to the user to perform a backup. The option **Backup** allows backups on a server and server group basis. The option **Backup All** allows backups on a network element basis.

Backing up using the Backup option

Use the following procedure to initiate a server backup.

Servers must be in an appropriate upgrade state prior to initiating a backup. The appropriate upgrade states are **Backup Needed** or **Ready**.

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Select the appropriate server group tab that contains the target server(s).
   Target server(s) are displayed in the work area.
3. (Optional) If you would like to selectively back up individual servers, highlight the server(s) from the listing.

   Note: If you would like to back up the entire server group, leave all servers unselected.
4. Select **Backup**.
5. On the Upgrade [Backup] form, select **Exclude** (to perform a full backup of the COMCOL run environment, excluding the database parts specified in the files) or **Do Not Exclude** (to perform a full backup of the COMCOL run environment without excluding any database parts, which is a longer procedure and produces larger backup files).
6. Select **OK** to run the back up procedure.

The backup process saves server information in the background for either all the servers that are available for backup, or just for the selected server(s).

Upgrade Backup elements

This table describes the elements on the **Upgrade Backup** form.

Table 40: Upgrade Backup Elements

Element	Description
Top Section	
Hostname	Hostname of the server
Action	The action available during the backup. This field is not editable. Valid values include: • Back up

Element	Description
	• No back up
Current application version	The current version of the application.
Full Backup Options	
Database parts exclusion	Valid values are: • **Exclude** - performs a full backup of the COMCOL run environment, excluding the database parts specified in the files in the exclude_parts.d directory. • **Do Not Exclude** - performs a full backup of the COMCOL run environment without excluding any database parts, which is a longer procedure and produces larger backup files in the filemgmt directory.

Backing up using the Backup All option

To create a full backup on a Network Element basis:

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Select **Backup All**.
3. On the Upgrade (Backup All) form all Networks Elements are selected for backup by default. Deselect any Network Elements that do not require a backup or alternatively, deselect **Action** and select any Network Elements required to be backed up. Take notice of the server list for all selected Network Elements. Confirm that all target servers are presented. If any target servers are not presented select **Cancel** and review the server status.
4. In the **Full backup options** pane of the Upgrade (Backup All) form, select **Exclude** (to perform a full backup of the COMCOL run environment, excluding the database parts specified in the files) or **Do Not Exclude** (to perform a full backup of the COMCOL run environment without excluding any database parts, which is a longer procedure and produces larger backup files).
5. Select **OK** to run the back up procedure.

The backup all process saves server information in the background for all servers of a selected network element group that are in the proper state for backup.

Upgrade Backup All elements

This table describes the elements on the **Upgrade Backup All** form.

Table 41: Upgrade Backup All Elements

Element	Description
Top Section	
Network element	Name of the Network Element
Action	This action defines which Network Element is included in the backup. By default all are selected. To limit the backup to a select group deselect the Action checkbox then selectively choose which Network Elements are to be included in the backup.

Element	Description
Server(s) in the proper state for backup	Defines which servers in each Network element are in a proper state for backup.
Full Backup Options	
Database parts exclusion	Valid values are: • **Exclude** - performs a full backup of the COMCOL run environment, excluding the database parts specified in the files in the exclude_parts.d directory. • **Do Not Exclude** - performs a full backup of the COMCOL run environment without excluding any database parts, which is a longer procedure and produces larger backup files in the filemgmt directory.

Performing upgrade health checks

Located on the **Upgrade** administration page are two buttons labeled **Checkup** and **Checkup All**. These buttons provide the ability to perform upgrade health checks at various stages of the upgrade process. The user has the ability to perform health checks on one or more selected servers, an entire server group, or more encompassing, on a network element basis. Additionally, the upgrade health check functionality is broken down into four types; Advance Upgrade, Early Upgrade, Pre-Upgrade, and Post-Upgrade.

Note: Depending on the application, any combination of the four types may be presented. As a user, if you only see three types on the **Upgrade [Checkup]** or **Upgrade [Checkup All]** form it's because the application chose to only support those three types.

See *Upgrade administration elements* for more information on these two buttons.

Note: Some applications may choose not to support health checks using these buttons. If your application chose not to support this functionality you will still see the button presented on the **Upgrade** page but they are disabled. You will be unable to navigate to the checkup forms.

CAUTION

Caution: Depending on the application, the upgrade health check buttons may have different functionality than what is described here. Upgrade health checks should only be run as directed in the application upgrade guide for your specific release.

Upgrade health check using the checkup option

Use the following procedure to initiate an upgrade health check on an individual server or per server group basis.

Note: The target ISO image file must be deployed prior to initiating a pre-upgrade health check. See *Deploying an ISO file* for more information. Additionally, a health check cannot be started on a server group or any individual servers in that group if another health check for that group is running. For example, a running network element based health check using the **Checkup All** option.

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Select the appropriate server group tab that contains the target server(s).
3. (Optional) If you would like to selectively run a health check on individual server, highlight the server(s) from the listing.

Note: To perform a health check on all servers in a server group, do not select any servers.

4. Select **Checkup**.
5. Select the appropriate **Checkup Type** using the options presented in the Health Check Settings pane.
6. Depending on the checkup type, the user may be required to select the appropriate ISO image file from the Upgrade ISO pulldown list.

Option	Description
Advance Upgrade	The user may optionally choose the target ISO image file from the Upgrade ISO pulldown list.
Early Upgrade	The user may optionally choose the target ISO image file from the Upgrade ISO pulldown list.
Pre-Upgrade	The user is required to choose the target ISO image file from the Upgrade ISO pulldown list.
Post-Upgrade	No image selection is required. The ISO pulldown list is disabled.

7. Select **OK**.

The system initiates the health check. The user can monitor the progress of the task by selecting the **Tasks** pulldown list in the page control area. Once the task is complete the user can access the results file either by selecting the active link under the details column in the **Tasks** pulldown list or navigate to **Status & Manage** > **Tasks** > **Active Tasks**, select the appropriate server tab, then select the active link in the result details column. Either of these methods presents the **Files** page. See *Files* for information about managing files.

Upgrade health check checkup option elements

This table describes the elements of the **Upgrade [Checkup]** form.

Table 42: Upgrade Checkup Elements

Element	Description
Top Section	
Hostname	Hostname of the server
Action	The action available during the upgrade health check. This field is not editable. Valid value is: • Health Check
Status	The current status of the server. Includes: • OAM Max HA Role • Appl Max HA Role (MP server groups only) • Network Element • Application Version
Health Check Settings	

Element	Description
Checkup Type	The upgrade health check type. Choices include: • Advance Upgrade • Early Upgrade • Pre-Upgrade • Post-Upgrade
Upgrade ISO	A pulldown list of available upgrade ISO media files. **Note:** This field is disabled for upgrade health checks of the type Post-Upgrade.
Submit Buttons	
Ok	Submits the information to the server, and if successful, returns to the View page for that table.
Cancel	Returns to the View page for the table without submitting any information to the server.

Upgrade health check using the checkup all option

Use the following procedure to initiate an upgrade health check on a network element basis.

Note: The target ISO image file must be deployed prior to initiating a pre-upgrade health check. See *Deploying an ISO file* for more information. Additionally, a health check cannot be started if another health check is running. For example, a running health check on a server group or any individual servers using the **Checkup** option.

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Select **Checkup All**.
3. Select the target Network Elements using the check boxes presented in the action pane. On the **Upgrade [Checkup All]** form, all Networks Elements are selected for check up by default. Deselect any Network Elements that do not require a check up or alternatively, deselect Action and select any Network Elements requiring a health check. Take notice of the server list for all selected Network Elements. Confirm that all target servers are presented. If any target servers are not presented select **Cancel** and review the server status.
4. Select the appropriate **Checkup Type** using the options presented in the Health Check Settings pane.
5. Depending on the checkup type, the user may be required to select the appropriate ISO image file from the Upgrade ISO pulldown list.

Option	Description
Advance Upgrade	The user may optionally choose the target ISO image file from the Upgrade ISO pulldown list.
Early Upgrade	The user may optionally choose the target ISO image file from the Upgrade ISO pulldown list.
Pre-Upgrade	The user is required to choose the target ISO image file from the Upgrade ISO pulldown list.

Option	Description
Post-Upgrade	No image selection is required. The ISO pulldown list is disabled.

6. Select **Ok**.

The system initiates the health check. The user can monitor the progress of the task by selecting the **Tasks** pulldown list in the page control area. Once the task is complete the user can access the results file either by selecting the active link under the details column in the **Tasks** pulldown list or navigate to **Status & Manage** > **Tasks** > **Active Tasks**, select the appropriate server tab, then select the active link in the result details column. Either of these methods presents the **Files** page. See *Files* for information about managing files.
Upgrade health check checkup all option elements

This table describes the elements of the **Upgrade [Checkup All]** form.

Table 43: Upgrade Checkup All Elements

Element	Description
Top Section	
Network element	Name of the Network Element.
Action	Defines which Network Elements are included in the checkup. By default all are selected. To limit the checkup to a select group, deselect the Action checkbox then selectively choose which Network Elements are to be included in the checkup.
Server(s)	Defines the servers in each Network Element. This does not imply that each server is in the proper upgrade state to initiate a health check.
Health check options	
Checkup Type	The upgrade health check type. Option choices include: • Advance Upgrade • Early Upgrade • Pre-Upgrade • Post-Upgrade
Upgrade ISO	A pulldown list of available upgrade ISO media files. **Note:** This field is disabled for upgrade health checks of the type Post-Upgrade.
Submit Buttons	
Ok	Submits the information to the server, and if successful, returns to the View page for that table.
Cancel	Returns to the View page for the table without submitting any information to the server.

Initiating Upgrade

After backing up the server configuration information, deploying the ISO images and running all health checks specified in the application upgrade guide, it is time to initiate the upgrade. The user has the option to upgrade individual servers or perform an automated upgrade for the entire server group.

Note: Upgrade health checks, including health checks of the type **Early Upgrade** and **Pre-Upgrade**, should only be run as directed in the application upgrade guide for your specific release.

Server Upgrade

Use the following procedure to initiate a server upgrade:

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Select one or more servers by highlighting them from the list.
3. Select **Upgrade Server**.
4. Select the appropriate ISO image from the **Upgrade ISO** pulldown list.
5. Select **OK**.

The system initiates the upgrade.
Initiate Server Upgrade elements

This table describes the elements on the **Initiate Upgrade** form for individual server upgrades.

Table 44: Initiate Upgrade Elements (Individual Servers)

Element	Description
Top Section	
Hostname	Hostname of the server
Action	The action available during the upgrade. This field is not editable. Valid value is: • Upgrade
Status	The current status of the server. Includes: • OAM Max HA Role • Appl Max HA Role (MP server groups only) • Network Element • Application Version
Upgrade Settings Section	
Upgrade ISO	A pulldown list that contains the file names of available ISO images.

Server Group Automated Upgrade

Use the following procedure to initiate an automated upgrade for an entire server group:

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Leave all servers unselected.

3. Select **Auto Upgrade**.

   The **Initiate Upgrade** form appears.

4. Select the appropriate **Mode** from the available listing.
   For information on the available upgrade settings, see the Initiate Server Group Upgrade elements.
5. For MPs only, select the desired **Availability** from the pulldown list.
   In serial upgrade mode **Availability** is not an option.
6. Select the appropriate ISO image from the **Upgrade ISO** pulldown list.
7. Select **OK**.

The system initiates the upgrade.
Initiate Server Group Upgrade elements

This table describes the elements on the **Initiate Upgrade** form for an automated Server Group upgrade.

Note: For OAM server groups, HA groups are created according to the "OAM HA Role" of the server. The non-active HA role order is spare, observer and standby. For MP server groups, HA groups are created according to the "Application HA Role" of the server. The HA role order is spare, observer, standby and active.

The options in the Upgrade Settings section vary by server group type.

Table 45: Initiate Upgrade Elements (Server Group)

Element	Description
Top Section	
Hostname	Hostname of the server
Action	The action available during the upgrade. This field is not editable. Valid values include: • No upgrade • Upgrade • Auto Upgrade
Status	The current status of the server. Includes: • OAM Max HA Role • Appl Max HA Role (MP server groups only) • Network Element • Application Version
Upgrade Settings Section	
Upgrade ISO	A pulldown list that contains the file names of available ISO images.
Mode	The server group upgrade mode. Valid values are: • Bulk - Upgrades all non-active OAM servers. For MPs only, upgrades servers according to availability setting in HA order • Serial - Upgrades individual servers sequentially in HA order

Element	Description
	• Grouped Bulk - Upgrades all non-active OAM servers by HA groups. For MPs only, upgrades servers in HA groups according to the availability setting
Availability	For MPs only. A pulldown list that specifies the desired percent availability of the servers in a server group during a bulk upgrade. Selecting **None** leads to all servers with an Action status of Auto Upgrade being unavailable.

Accepting an Upgrade

After the server has successfully upgraded, run all health checks specified in the application upgrade guide. Accepting the upgrade confirms that the upgrade is correct and signals the end of the upgrade process.

Note: Upgrade health checks, including health checks of the type **Post-Upgrade**, should only be run as directed in the application upgrade guide for your specific release.

CAUTION

Caution: Once an upgrade is accepted, the backup configuration files are deleted and you cannot backout. It is not necessary to accept an upgrade immediately after completion. The decision may be made to test or soak the upgraded system prior to acceptance.

Use the following procedure to complete an upgrade:

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Highlight the target server(s) from the listing.
3. Select **Accept** to complete the upgrade.

Generating an Upgrade Report

Use this procedure to generate a server report:

1. Select **Administration** > **Software management** > **Upgrade**.
2. Generate a report using one of the options listed below:
   - To generate a report for specific servers in a server group, click to select the server for which you want to create a report, and then click **Report**.
   - To generate a report for all servers in a server group, do not select any server in the group, and then click **Report**.
   - To generate a report for all servers in all server groups, click **Report All**.
3. Click **Print** to print the report, or click **Save** to save a text file of the report.

Remote Servers

The Remote Servers options allow you to administer:

- LDAP Authentication
- SNMP Trapping
- Data Export
- DNS Configuration

For more information, see each individual section.

LDAP Authentication

The following sections outline the information necessary to configure the authentication or LDAP servers. This includes server elements and procedures on configuring, updating, viewing and deleting server information.

Single sign-on (SSO) can be configured to work either with or without a shared LDAP authentication server. If an LDAP server is configured, SSO can be configured to require remote (LDAP) authentication for SSO access on an account by account basis. The default user account (guiadmin) cannot be configured to use remote (LDAP) authentication.

If multiple LDAP servers are configured, the first available server in the list is used to perform the authentication. Secondary servers are only used if the first server is unreachable.

If the system is not using a DNS server or IP address for the LDAP server, the LDAP server must be added to the etc/hosts file.

LDAP Authentication elements

This table describes the elements of the LDAP Authentication page.

Table 46: LDAP Authentication Elements

Element	Description	Data Input Notes
Hostname	Unique case-sensitive name for the server.	Format: Valid IPv4 or IPv6 address or a valid hostname. Format: Case-sensitive alphanumeric [a-z, A-Z, 0-9], period (.) and minus sign (-). The first character must be alpha. Range: 1 to 255-character string
Account Domain Name	Domain name of the LDAP server.	Format: <name>.<tld> (ex. website.com). Range = 1-20 character alphanumeric [a-z, A-Z, 0-9], period (.)
Account Domain Name Short	The short version of the domain name listed above (i.e., WEBSITE).	Must be a capitalized version of the domain name, without the extension. Range = 1-10 character alphanumeric [a-z, A-Z, 0-9]
Port	Port that the LDAP servers can be accessed by on the host machine	Default = 389 Range = Integer with value between 0 and 65535

Element	Description	Data Input Notes
Base DN	Directory path of the user being authenticated.	Range = 1-100 character alphanumeric [a-z, A-Z, 0-9]
Username	Username used for account DN lookups	Range = 1-15 character alphanumeric [a-z, A-Z, 0-9]
Password	The password of the user DN used for account lookups.	Range: restrictions depend on the LDAP server's settings.
Account Filter Format	User account search filter	Range = 1-100 character alphanumeric [a-z, A-Z, 0-9] Default = (&(objectClass=user)Ȁ(sAMAccountName=%s))
Account Canonical Form	Canonical Form for the provided username	Format: Options Valid choices: • Traditional (e.g., guest) • Backslash (e.g., WEBSITE\guest) • E-Mail (e.g., guest@website.com) Default = Backslash style
Referrals	Whether or not to follow referrals	Default = unchecked (ignore)
Bind Requires DN	Whether the LDAP authentication bind requires a username in DN form	Default = unchecked (disabled)

Configuring LDAP authentication servers

Use this procedure to configure LDAP authentication servers:

1. Select **Administration** > **Remote Servers** > **LDAP Authentication**.
2. Click **Insert** at the bottom of the table.
3. Enter a **Hostname**. This is a user-defined name for the server. The hostname must be unique.
4. Enter an **Account Domain Name**. This is the name of the LDAP server.
5. Enter an **Account Domain Short Name**. This is a shorter version of the domain name, for example, WEBSITE.
6. Enter the **Port** for the LDAP server on the remote machine.
7. Enter the **Base DN**. This is the directory path of the user being authenticated.
8. Enter the **User Name** for the user domain name.
9. Enter the **Password** for the user domain.
10. Enter the **Account Filter Format**. This is the user account search filter.
11. Enter the **Account Canonical Form**. This is the format for the user name listing.
12. Select whether or not to follow **Referrals.**

13. Select whether or not to enable **Bind Requires DN**, which determines whether the LDAP required the user name in DN format.
14. Click **OK** to submit the information and return to the LDAP Authentication page, or click **Apply** to submit the information and continue entering additional data.

    Note: Once you have entered LDAP servers to the listing, you can order them using the **Move Up** and **Move Down** buttons on the LDAP Authentication screen. The server order in the listing determines the order that servers are tried against.
15. When finished adding LDAP servers, click **Test Server** to validate the server connection. This button allows you to confirm the server settings (by entering the correct userid/password combination) without logging out.

Updating LDAP Authentication Servers

Use this procedure to update LDAP authentication server information:

1. Select **Administration** > **Remote Servers** > **LDAP Authentication**.
2. Update LDAP settings as needed.
3. Click **OK** or **Apply** to submit the information.

The LDAP server changes are saved and activated.

Generating a LDAP Authentication report

Use this procedure to generate a LDAP Authentication report.

1. Select **Administration** > **Remote Servers** > **LDAP Authentication**.
2. Click **Report**.

    Note: It is unnecessary to select a particular user, because all users appear in the Users Report.

    The LDAP Authentication report can be printed or saved to a file.
3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.

Deleting a LDAP Authentication Server

Use this procedure to delete a LDAP Authentication server:

1. Select **Administration** > **Remote Servers** > **LDAP Authentication**.
2. Select the appropriate host name from the listing for the LDAP Authentication server to delete.
3. Click **Delete**.
4. Click **OK** to delete the authentication server.

The server is deleted from the database and no longer appears in the listing.

SNMP Trapping

The **SNMP Trapping** page enables the user to configure up to five remote managers to receive traps using the industry-standard Simple Network Management Protocol (SNMP). The user can choose between versions v2c, v3, or both along with the typical security parameters associated with each of the versions. In addition, traps from individual servers can be enabled from this view.

Note: The SNMP Manager is provided by the customer.

The SNMP agent is responsible for SNMP-managed objects. Each managed object represents a data variable. A collection of managed objects is called a Management Information Base (MIB). In other words, a MIB is a database of network management information that is used and maintained by the SNMP protocol. The MIB objects contain the SNMP traps that are used for alarms; a readable SNMP table of current alarms in the system; and a readable SNMP table of KPI data.

By default, system-wide traps are sent from the active Network OAM&P server while site-specific traps are sent from active Site OAM servers. Alternately, functionality may be enabled that allows individual servers to send traps, in which case individual servers interface directly with SNMP managers.

Note: Note that only the Active Network server allows SNMP administration.

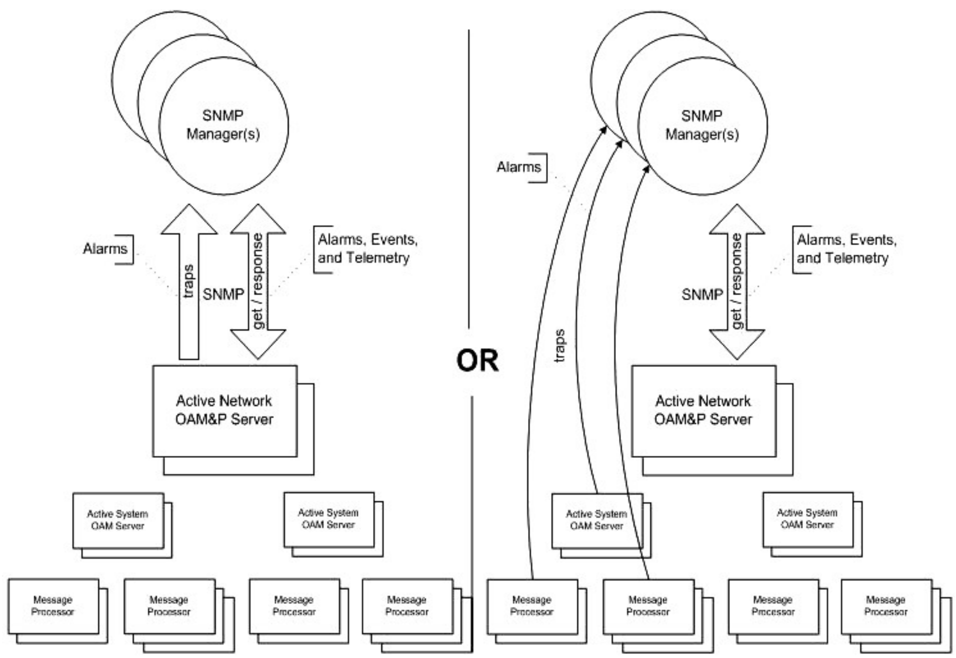


Figure 14: SNMP Support

The application sends SNMP traps to SNMP Managers that are registered to receive traps. IP addresses and authorization information can be viewed and changed using the SNMP administration page. For SNMP to be enabled, at least one Manager must be set up.

SNMP administration elements

On the active network OAM&P server, the **SNMP Administration** page provides for the configuration of SNMP services. This table describes the elements of the **SNMP Administration** page.

Table 47: SNMP Administration Elements

Element	Description	Data Input Notes
Manager 1	Manager to receive SNMP traps and send requests. It could be a valid IP address or a valid hostname.	Valid IP address or a valid hostname IPv4 addresses are 32 bits, represented in a dot-decimal notation like this: x.x.x.x where each x (called an octet) is a decimal value from 0 to 255. They are separated by periods. For example: 1.2.3.4 and 192.168.1.100 are valid IPv4 addresses. IPv6 addresses are 128 bits, represented in a colon-hexadecimal notation like this: z:z:z:z:z:z:z:z where each z is a group of hexadecimal digits ranging from 0 to ffff. They are separated by colons. Leading zeros may be omitted in each group. "::" can be used (at most once) in an IPv6 address to represent a range of as many zero fields as needed to populate the address to eight fields. So the IPv6 address 2001:db8:c18:1:260:3eff:fe47:1530 can also be represented as 2001:0db8:0c18:0001:0260:3eff:fe47:1530 and the IPv6 address ::1 is the same as 0000:0000:0000:0000:0000:0000:0000:0001 Hostname Format: Alphanumeric [a-z, A-Z, 0-9] and minus sign (-) Hostname Range: 1 to 255-character string
Manager 2	Manager to receive SNMP traps and send requests. It could be a valid IP address or a valid hostname.	See description for Manager 1.
Manager 3	Manager to receive SNMP traps and send requests. It could be a valid IP address or a valid hostname.	See description for Manager 1.
Manager 4	Manager to receive SNMP traps and send requests. It could be a valid IP address or a valid hostname.	See description for Manager 1.
Manager 5	Manager to receive SNMP traps and send requests. It could be a valid IP address or a valid hostname.	See description for Manager 1.
Enabled Versions	Enables the specified version(s) of SNMP. Options are: • SNMPv2c: Allows SNMP service only to managers with SNMPv2c authentication.	Format: Pulldown list Range: SNMPv2c, SNMPv3, or SNMPv2c and SNMPv3 Default: SNMPv2c and SNMPv3

Element	Description	Data Input Notes
	• SNMPv3: Allows SNMP service only to managers with SNMPv3 authentication. • SNMPv2c and SNMPv3: Allows SNMP service to managers with either SNMPv2c or SNMPv3 authentication. This is the default.	
Traps Enabled	Enables or disables SNMP trap output. The GUI user may selectively disable sending autonomous traps to SNMP managers when alarms are raised. Default is enabled. Access to alarm and KPI tables is not affected by this setting.	Format: Check box Range: Enabled or Disabled Default: Enabled
Traps from Individual Servers	Enables or disables SNMP traps from individualservers. If enabled, the traps are sent from individual servers, otherwise traps are sent from the Network OAM&P server.	Format: Check box Range: Enabled or Disabled Default: Disabled
SNMPV2c Read-Only Community Name	Configured Read-Only Community Name (SNMPv2c only). Public is the default. This field is required when SNMPv2c is enabled in Enabled Versions. The length of community name should be less than 32 characters.	Format: Alphanumeric [a-z, A-Z, 0-9] Range: 1 - 31 characters Default: snmppublic **Note:** The Community Name cannot equal "Public" or "Private".
SNMPV2c Read-Write Community Name	Configured Read-Write Community Name (SNMPv2c only). Public is the default. This field is required when SNMPv2c is enabled in Enabled Versions. The length of community name should be less than 32 characters.	Format: Alphanumeric [a-z, A-Z, 0-9] Range: 1 - 31 characters Default: snmppublic **Note:** The Community Name cannot equal "Public" or "Private".
SNMPv3 Engine ID	Configured Engine ID (SNMPv3 only). This field is required when SNMPv3 is enabled in **Enabled Versions**. A unique Engine ID value is generated by default.	Format: Hex digits 0-9 and a-f Range: 10 - 64 characters Default: A unique Engine ID value
SNMPv3 Username	Specifies an authentication username (SNMPv3 only). The default is TekSNMPUser. This field is required when SNMPv3 is enabled in Enabled Versions.	Format: Alphanumeric [a-z, A-Z, 0-9] Range: 1 - 32 characters Default: TekSNMPUser
SNMPv3 Security Level	Sets authentication and privacy options (used for SNMPv3 only).	Format: Pulldown list Range:

Element	Description	Data Input Notes
		• No Auth No Priv: Authenticate using the user name. No Privacy. • Auth No Priv: Authenticate using the MD5 or SHA1 protocol. No Privacy. • Auth Priv: Authenticate using the MD5 or SHA1 protocol. Encrypt using the AES or DES protocol. This is the default value. Default: Auth Priv
SNMPv3 Authentication Type	Sets authentication protocol (used for SNMPv3 only).	Format: Pulldown list Range: SHA-1 or MD5 Default: SHA-1
SNMPv3 Privacy Type	Sets privacy protocol (used for SNMPv3 only). This field is required when SNMPv3 Security Level is set to Auth Priv.	Format: Pulldown menu Range: • AES: Use Advanced Encryption Standard privacy. • DES: Use Data Encryption Standard privacy. Default: AES
SNMPv3 Password	Authentication password set up for the user specified in SNMPv3 Username (used for SNMPv3 only). This field is required when SNMPv3 is enabled and privacy is enabled in SNMPv3 Security Level.	Format: Any characters] Range: 8 - 64 characters

Adding a SNMP manager

Use this procedure to add a SNMP Manager:

1. Select **Administration** > **Remote Servers** > **SNMP Trapping**.

   The SNMP Trapping page appears.
2. Update **Enabled Versions** as appropriate.

   For more information about **Enabled Versions**, or any field on this page, see *SNMP administration elements*.
3. Select an empty **Manager** field and populate it with the hostname or IP address of the SNMP manager.
4. Enable traps from individual servers.

   This step is optional.
5. For SNMPv2c managers, optionally change the **SNMPV2c Read-Only Community Name**.
6. For SNMPv2c managers, optionally change the **SNMPV2c Read-Write Community Name**.

7. For SNMPv3 managers, choose an **SNMPv3 Security Level**, and optionally change the **SNMPv3 Engine ID, SNMPv3 Authentication Type**, and **SNMPv3 Privacy Type**.
8. For SNMPv3 managers with user authentication enabled, configure **SNMPv3 Username**.
9. For SNMPv3 managers with privacy enabled, configure **SNMPv3 Password**.
10. Click **OK** or **Apply** to submit the information.

The new manager and related settings are saved and activated.

Viewing SNMP trap settings

Use this procedure to view SNMP trap settings:

Select **Administration** > **Remote Servers** > **SNMP Trapping**.

The SNMP Trapping page appears. The page lists all SNMP options on the system.

Updating SNMP trap settings

Use this procedure to update SNMP trap settings:

1. Select **Administration** > **Remote Servers** > **SNMP Trapping**.
   The **SNMP Trapping** page appears.
2. Update SNMP trap settings as needed.
   For more information, see *SNMP administration elements*.
3. Click **OK** or **Apply** to submit the information.

The SNMP trap changes are saved and activated.

Deleting SNMP trap managers

Use this procedure to remove one or more SNMP trap managers:

1. Select **Administration** > **Remote Servers** > **SNMP Trapping**.
   The **SNMP Trapping** page appears.
2. Delete the SNMP hostnames and IP addresses from the **Manager** fields for which you want traps removed.
3. Click **OK** or **Apply**.

The SNMP configuration changes are saved. If the SNMP manager hostnames and IP addresses are cleared from all Manager fields, the SNMP feature is effectively disabled.

Data Export

From the Data Export page you can set an export target to receive exported selected data. Several types of data can be filtered and exported using this feature. For more information about how to create data export tasks, see:

- *Exporting active alarms*
- *Exporting alarm and event history*
- *Exporting security log files*

- *Exporting KPIs*
- *Exporting measurements reports*

From the Data Export page you can manage file compression strategy and schedule the frequency with which data files are exported.

Data Export elements

This table describes the elements on the **Administration** > **Remote Servers** > **Data Export** page.

Table 48: Data Export Elements

Element	Description	Data Input Notes
Hostname	Name of export server	Must be a valid hostname or a valid IP address. Range: Maximum length is 255 characters; alphanumeric characters (a-z, A-Z, and 0-9) and minus sign. Hostname must start and end with an alphanumeric. To clear the current export server and remove the file transfer task, specify an empty hostname and username. Default: None
Username	Username used to access the export server	Format: Textbox Range: Maximum length is 32 characters; alphanumeric characters (a-z, A-Z, and 0-9). To clear the current export server and remove the file transfer task, specify an empty hostname and username. Default: None
Directory on Export Server	Directory path on the export server where the exported data files are to be transferred	Format: Textbox Range: Maximum length is 255 characters; valid value is any UNIX string. Default: None
Path to rsync on Export Server	Optional path to the rsync binary on the export server	Format: Textbox Range: Maximum length is 4096 characters; alphanumeric characters (a-z, A-Z, and 0-9),dash, underscore, period, and forward slash. Default: If no path is specified, the username's home directory on the export server is used
Backup File Copy Enabled	Enables or disables the transfer of the backup files	Format: Checkbox Default: Disabled (unchecked)

Element	Description	Data Input Notes
File Compression	Compression algorithm used when exported data files are initially created on the local host	Format: Radio button Range: gzip, bzip2, or none Default: gzip
Upload Frequency	Frequency at which the export occurs	Format: Radio button Range: fifteen minutes, hourly, daily or weekly Default: weekly
Minute	If The Upload Frequency is Hourly, this is the minute of each hour when the transfer is set to begin	Format: Scrolling list Range: 0 to 59 Default: zero
Time of Day	If the Upload Frequency is Daily of Weekly, this is the time of day the export occurs	Format: Time textbox Range: HH:MM AM/PM in 15-minute increments Default: 12:00 AM
Day of Week	If Upload Frequency is Weekly, this is the day of the week when exported data files will be transferred to the export server	Format: Radio button Range: Sunday through Saturday Default: Sunday
SSH Key Exchange	This button initiates an SSH key exchange between the OAM server and the data export server currently defined on the page. A password must be entered before the exchange can complete.	Format: Button
Transfer Now	This button initiates an immediate attempt to transfer any data files in the export directory to the export server	Format: Button
Test Transfer	This button initiates an immediate test transfer to the data export server currently defined on the page.	Format: Button
Keys Report	This button generates an SSH Keys Report for all OAM servers.	Format: Button

Configuring data export

The **Data Export** page enables you to configure a server to receive exported performance and configuration data. Use this procedure to configure data export.

1. Select **Administration** > **Remote Servers** > **Data Export**.
2. Enter a **Hostname**.
   See *Data Export elements* for details about the **Hostname** field and other fields that appear on this page.
3. Enter a **Username**.
4. Enter a **Directory Path** on the Export server.
5. (Optional) Enter the **Path to Rsync** on the Export server.

   Note: Depending on the OS and implementation of the remote server, it may be required to define the path to the rsync binary on the export server but this is not common. If no path is specified, the username's home directory on the export server is used.
6. Select whether to enable the transfer of the backup file. To leave the backup disabled, do not check the box.
7. Select the **File Compression** type.
8. Select the **Upload Frequency**.
9. If you selected hourly for the upload frequency, select the **Minute** intervals.
10. If you selected daily or weekly for the upload frequency, select the **Time of Day**.
11. If you selected weekly for the upload frequency, select the **Day of the Week**.
12. If public keys were manually placed on the Export server, skip to step *Step 14*. Otherwise, click **Exchange SSH Key** to transfer the SSH keys to the Export server.
13. Enter the password.
    The server attempts to exchange keys with the export server currently defined on the page. After the SSH keys are successfully exchanged, continue with the next step.
14. Click **OK** to apply the changes or **Cancel** to discard the changes.
    The export server is now configured and available to receive performance and configuration data.
15. You may optionally click **Test Transfer** to confirm the ability to export to the server currently defined on the page.
    The user can monitor the progress of the task by selecting the **Tasks** drop down list in the page control area.

Generating a data export keys report

The **Keys Report** button located on the **Data Export** page generates a report that contains the root public keys of the local OAM server. The keys can then be added to the remote server to allow RSYNC transfer of exported data files from the selected OAM server.

Note: The **Keys Report** function is available regardless of whether a data export job is currently defined or not.

The report can be printed, or saved to a file.

Use this procedure to generate a data export keys report.

1. Select **Administration** > **Remote Servers** > **Data Export**.

The **Data Export** page appears.

2. Click the **Keys Report** button.
   The **Data Export [Report]** appears and displays the public keys of the local OAM server.
3. Click **Print** to print the report, or click **Save** to save the file locally to your client workstation.
   Clicking the **Back** button returns you to the **Data Export** page.

The keys report contains detailed instructions on how to add these public keys to the remote server.

DNS Configuration

The following sections discuss the procedures used to set up the DNS (Domain Name System) configuration.

DNS configuration elements

The DNS Configuration page provides for configuration of the domain name system. This table describes the elements of the DNS Configuration page.

Table 49: DNS Configuration Elements

Element	Description	Data Input Notes
Domain	System Domain Name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters
Name Server 1	Address of a DNS name server	Format: Must be a valid ipv4 or ipv6 address
Search Domain 1	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters
Search Domain 2	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters
Search Domain 3	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters
Search Domain 4	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters
Search Domain 5	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters

Element	Description	Data Input Notes
Search Domain 6	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters

Adding a DNS Configuration

Use this procedure to add a DNS Configuration:

1. Select **Administration** > **Remote Servers** > **DNS Configuration**.
   The DNS Configuration page appears.
2. Enter the **Domain Name**.
3. Enter a **Name Server** for the external DNS name server.
4. Enter the **Search Domain** in the domain search order. You may add up to six search domain names.
5. Click **OK** or **Apply** to submit the information.

The new DNS configuration is saved and activated.

Updating a DNS Configuration

Use this procedure to update a DNS configuration:

1. Select **Administration** > **Remote Servers** > **DNS Configuration**.
   The DNS Configuration page appears.
2. Enter the updated **Domain** for the system.
   For more information about **Domain**, or any field on this page, see the DNS configuration elements.
3. Enter the updated **Name Server** in the appropriate field.
4. Enter the updated search domain name in the appropriate fields. You may add up to six search domain names.
5. Click **OK** to submit the information.

The updated DNS configuration is saved and activated.

Chapter 4

Configuration

Topics:

This section describes configuration functions. Configuration data defines the network topology for the network. The topology determines the network configuration, the layout or shape of the network elements, and their components. It defines the interlinking and the intercommunicating of the components. The network topology represents all server relationships within the application. The server relationships are then used by MiddleWare to control data replication and data collection, and define HA relationships.

Network Elements

This application is a collection of servers linked by standardized interfaces. Each server can be used multiple times in a network for load balancing or organizational issues. Network Elements are containers that group and create relationships among servers in the network. These relationships allow the software and hardware to properly work together. Understanding the relationships among the servers allows you to configure the system. The primary network element relationship is the network element to server. Servers are assigned to network elements. A network element can contain multiple servers but a single server is part of only one network element. The attributes of a server include the network element to which it belongs

Configuration of Network Elements must follow a specific chronology.

1. Configure the first Network Element, beginning with the configuration of switches. After the switches are configured, the first NOAMP server must be configured through the GUI interface.
2. After the first NOAMP server has been configured, configure the second NOAMP.
3. If the system supports SOAMs, and after the first Network Element is configured and running, additional Network Elements can be configured to support SOAM servers.

Network Elements Insert elements

These tables describe the elements of the **Network Elements Insert** page.

Note: Networks are no longer configured using the Network Element pages. Networks can still be added when uploading an XML file to configure a network element. To complete network configuration, see the Networks section.

Note: A signaling network element can only be added after a NOAMP with at least one server has been added.

Element	Description	Data Input Notes
Network Element Name	The user-defined name for the network element.	Format: 1 to 32 character string containing alphanumeric characters and underscore. It must contain at least one alphabetic character and must not start with a digit

Inserting a Network Element

You define a network by configuring network elements and adding servers to the network elements. A maximum of sixteen (16) network elements can be configured.

Note: Network information is no longer configured using the Network Element pages. To complete network configuration, see the Networks section.

Use this procedure to configure and insert a network element:

1. Select **Configuration** > **Network Elements**.

   The **Network Elements** page appears.
2. Click **Insert**.

The **Network Elements Insert** page appears.

3. Enter a unique name across the network element table in **Network Element Name**.

   See *Network Elements Insert elements* for details about the **Network Element Name** field and other fields that appear on this page.
4. Click **OK** to submit the information and return to the **Network Elements** page.

The network element is added to the topology database tables, and the GUI displays the updated Network Elements table.

Uploading a configuration file

Use this procedure to upload an XML file to configure a new network element:

1. Select **Configuration** > **Network Elements**.

   The **Network Elements** page appears.
2. Click **Choose File** to locate the file you want to use to configure a new network element.

   The **File Upload** window appears.
3. Select the file you want to use to configure a new network element.

   The selected file appears in the text box.
4. Click **Upload File**.

Data validation is performed immediately. If the file is valid, a new network element is created. Alternately, a file that contains invalid parameters returns an error message, and no network element is created.

Viewing Network Elements

Use this procedure to view network elements:

1. Select **Configuration** > **Network Elements**.
   The **Network Elements Configuration** page appears.
2. Click on the folder icon beside the **Network Element Name** to view additional information about the selected network element.

Deleting a Network Element

Before a network element can be deleted, there must be no servers associated with the network element.

Use this procedure to delete a network element:

1. Select **Configuration** > **Network Elements**.

   The **Network Elements** page appears.
2. Click to select the network element you want to delete and click **Delete**.

   A delete confirmation message appears.
3. Click **OK** to delete the network element from the database tables.
   The updated **Network Elements Configuration** page appears.

The network element is deleted from the topology databases.

Network Element Report Elements

The report is divided into three sections, and each section contains subsections. Any field for which there is no data will display the value "n/a".

Table 50: Layer-3 Network Element Report

Section	Subsection
Network Element Summary	Each network element is listed individually with related general information. • RSTP Enabled • Frame ID • Position • Demarcation Type • Commit State
Network Report	Each network element is listed individually with information about network. • Network Name: Name for the network • VLAN ID: Three character numeric VLAN ID • Network ID: Numeric network ID • Netmask: Mask used to divide an IP address into subnets and specify the networks available hosts • Gateway: IP address for Gateway server • Type: Network type • Default: Whether the network is the default gateway
Server Report	Each network element is listed individually with information about the related servers. • Hostname: name of server associated with the network element • XMI Address: XMI address for server • IMI Address: IMI address for server • RMM Address: n/a

Generating a Network Element Report

A network element report provides a summary of the network element configuration. This report can be used to:

- View network element configurations
- Compare network element configurations to system manager network configurations
- Relate network elements to servers, VLANs, and systems
- View a list of the locations the application occupies
- View a list of the IP addresses in the application topology

This report can also be printed or saved to a file.

Use this procedure to generate a network element report:

1. Select **Configuration** > **Network Elements**.

   The **Network Elements** page appears.
2. To generate a report for a single network element, click to select the network element and click **Report**. To generate a report for all configured network elements, click **Report**.

   Alternately, you can select multiple rows and generate a report using those. To select multiple rows, press and hold **Ctrl** as you click to select specific rows.

   The Network Element Report is generated.
3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.

Exporting a network element

The network element export button generates an installation script file used for hardware configuration. Use this procedure to export the configuration parameters of a network element:

1. Select **Configuration** > **Network Elements**.

   The **Network Elements** page appears.
2. Click to select a network element from the table.
3. Click **Export**.
   A CSV file is created.

Network

The **Network** pages allow the user to configure signaling networks, devices, and routes. Through the **Configuration > Network** page, network IDs and subnets can be added to enable servers to communicate with the signaling networks. Route configuration allows the user to define specific routes for signaling traffic. Device configuration allows the user to configure additional interfaces on MP servers used in signaling networks.

Network Insert elements

This table describes the elements of the **Network [Insert]** page.

Table 51: Network Insert Elements

Field	Description	Data Input Notes
Network Name	The name of the Network	Format: Alphanumeric; must begin with a letter Range: 31 character maximum
Network Element	The network element associated with the network. If not specified, the network	Format: Drop down list

Field	Description	Data Input Notes
	will be available to servers in all network elements.	
VLAN ID	The VLAN ID of the Network	Format: Numeric Range: 1-4094 **Note:** VLAN IDs 1-4 are reserved for Management. VLAN IDs that are already in use cannot be reused.
Network Address	The network address of the Network	Format: Valid network address Range: Dotted decimal (IPv4) or colon hex (IPv6)
Netmask	Subnetting to apply to servers within the Network	Range: Valid netmask for the network in prefix length (IPv4 or IPv6) or dotted quad decimal (IPv4)
Router IP	The IP address of a router on this network. **Note:** If this is a default network, this will be used as the gateway address of the default route on servers with interfaces on this network. If customer router monitoring is enabled, this address will be the one monitored.	Format: Valid IP address
Default Network	Whether the network is the default gateway	Format: Radio button Range: Yes or No
Routable	Whether the network is routable outside its network element. **Note:** If it is not assigned to a network element, it is assumed to be possibly present in all network elements.	Format: Radio button Range: Yes or No

Inserting a Network

Use the following procedure for inserting a network. Alternatively, you can also use the procedures included in the Network Elements topics.

1. Select **Configuration** > **Network**
   The **Configuration** > **Network** page appears.
2. Click **Insert**.
   The **Configuration** > **Network [Insert]** page appears.
3. Enter a **Network Name**.
   For more information about **Network Name**, or any field on this page, see *Network Insert elements*.

4. Enter a **VLAN ID**.
5. Enter a **Network Address**.
6. Enter a **Netmask**.
7. Click **OK** to submit the information and return to the Network page, or click **Apply** to submit the information and continue entering additional data.

The new network is added.

Configuration Network Elements

This table describes the elements of the **Configuration > Network** page.

Table 52: Configuration Network Elements

Field	Description
Network Name	The name associated with the network
VLAN	VLAN ID associated with the network
Network	The IP address associated with the network in the format: IP Address/Prefix Length

Editing a Network

Not all networks can be edited. Pre-configured networks created during the install process, for example, cannot be edited. A network that cannot be edited is distinguished using italic font.

Note: Before editing a network, generate a network report. The network report will serve as a record of the network's original settings. Print or save the network report for your records. For more information about generating a network report, see *Generating a Network Report*.

1. Select **Configuration** > **Network**.
   The **Configuration** > **Network** page appears.
2. Click to select a network and click **Edit.**

   Note: If the network is currently unlocked, the button will read **Lock**. If the button is currently locked, the button will read **Unlock**.

   If the network can be edited, the **Configuration** > **Network [Edit]** page appears.
3. Edit the available fields as necessary.

   See *Network Insert elements*for details about the fields that appear on this page.

   Note: Fields that cannot be edited are disabled.

4. Click **OK** to submit the changes and return to the **Configuration** > **Network** page, or click **Apply** to submit the information and continue editing additional data.

The network is changed.

Locking and Unlocking a Network

Any network on the system can be locked or unlocked. When a network is locked, no modifications may be made to any device or route that uses that network. To add route or a device to a network, the network would have to be in an unlocked state.

1. Select **Configuration** > **Network**
   The **Configuration** > **Network** page appears.
2. Click to select a network and click **Lock/Unlock.**

   Note: If the network is currently unlocked, the button will read **Lock**. If the button is currently locked, the button will read **Unlock**.

3. At the confirmation window, click **OK**. When unlocking a network, you will also have to confirm your decision using a check box.

The network is locked or unlocked.

Deleting a Network

Not all networks can be deleted. In-use networks and pre-configured networks created during the install process, for example, cannot be deleted. A network that cannot be deleted is distinguished using italic font.

Note: Before deleting a network, generate a network report. The network report will serve as a record of the network's original settings. Print or save the network report for your records. For more information about generating a network report, see *Generating a Network Report*.

1. Select **Configuration** > **Network.**
   The **Configuration** > **Network.** page appears.
2. Click to select the network you want to delete. Alternately, you can delete multiple networks. To delete multiple networks, press and hold **Ctrl** and click to select specific networks.

   Note: If the network cannot be deleted, the **Delete** button will be disabled.

   Note: To delete multiple networks at one time, all selected networks must be deletable.

3. Click **Delete**.
   A confirmation box appears.
4. Click **OK** to delete the network.
   The network is deleted.

Generating a Network Report

A network report provides a summary of the configuration of one or more networks. Reports can be printed or saved to a file.

1. Select **Configuration** > **Network**
   The **Configuration** > **Network** page appears.
2. Click **Report** to generate a report for all networks. To generate a report for a single network, click to select the network and click **Report**. Alternately, you can select multiple networks. To generate a report for multiple networks, press and hold **Ctrl** as you click to select specific networks.

The Network Report is generated.

3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.

Devices

Device configuration allows the user to configure interfaces on MP servers used in signaling networks.

Device Insert Elements

This table describes the elements of the **Devices [Insert]** page.

Table 53: Devices General Options

Field	Description	Data Input Notes
Device Type	The type of device	Format: Radio button Range: Ethernet, Bonding, VLAN, Alias **Note:** Ethernet is not selectable.
Device Monitoring	The monitoring style to use with a bonding device	Format: Pulldown list Default: MII Range: MII, ARP **Note:** Device Monitoring is disabled when the Device Type is not Bonding.
Start on Boot	When selected, this checkbox enables the device to start on boot.	Format: Checkbox Default: Enabled
Boot Protocol	The boot protocol	Format: Pulldown list Range: None, DHCP Default: None
Base Device(s)	The base device(s) for Bond, Alias, and VLAN device types **Note:** Alias and VLAN devices require one selection; bond devices require two selections.	Format: Checkbox Range: Available base devices

The **MII Monitoring Options** and **ARP Monitoring Options** tabs collect settings for MII and ARP monitoring, respectively. The **IP Interfaces** tab allows interfaces to be associated with a device.

Table 54: Devices MII Monitoring Options Tab

Field	Description	Data Input Notes
Primary Interface	The preferred primary interface	Format: Pulldown list Range: None and available devices Default: None
Monitoring Interval	MII monitoring interval in milliseconds	Range: A positive integer Default: 100ms
Upstream Delay	MII monitoring upstream delay in milliseconds	Range: A positive integer Default: 200ms
Downstream Delay	MII monitoring downstream delay in milliseconds	Range: A positive integer Default: 200ms

Table 55: Devices ARP Monitoring Options Tab

Field	Description	Data Input Notes
Primary Interface	The preferred primary interface	Format: Pulldown list Range: Available devices
Monitoring Interval	ARP monitoring interval in milliseconds	Range: A positive integer Default: 100ms
ARP Validation	The method to validate the ARP probes and replies	Format: Pulldown list Range: None, Active, Backup, All Default: None
ARP Target IP(s)	Comma-separated ARP target IP addresses	Format: Valid IP address Range: Dotted quad decimal (IPv4) or colon hex (IPv6)

Table 56: Devices IP Interfaces Tab

Field	Description	Data Input Notes
IP Address List	The IP address of the interfaces associated with the device	Format: Valid IP address Range: Dotted quad decimal (IPv4) or colon hex (IPv6)
Add Row	Displays a textbox to add an IP Address	Format: Button **Note:** Multiple rows can be added.

Field	Description	Data Input Notes
IP Address textbox	Textbox for an IP address	Format: Textbox Range: Dotted quad decimal (IPv4) or colon hex (IPv6)
Remove	Removes the device interface IP Address on the selected row	Format: Button

Inserting a Device

Devices cannot be created which use management networks (those configured after installation and designated in the Network listing in blue italic text). This ensures continued access to the GUI via the management networks.

1. Select **Configuration** > **Network** > **Devices**.
   The **Configuration** > **Network** > **Devices** page appears.
2. Select a server.
3. Click **Insert**.
   The **Configuration** > **Network** > **Devices [Insert]** page appears.
4. Select a **Device Type**.

   For more information about **Device Type**, or any field on this page, see *Device Insert Elements*.

   Note: Device Type of Ethernet cannot be selected.
5. Select a **Device Monitoring** style.

   Note: Device Monitoring is only used when the Device Type is Bonding.
6. By default, **Start on Boot** is enabled. Uncheck the check box if you want to disable **Start on Boot**.
7. Select the **Boot Protocol**.
8. Select the **Base Device(s)** if the device type is one of the following: Bond, Alias, or VLAN.

   Note: Alias and VLAN devices require one selection; bond devices require two selections.
9. Click **OK** to submit the information and return to the **Configuration** > **Network** > **Devices** page, or click **Apply** to submit the information and continue entering additional data.

The device is added. You can now update MII and ARP monitoring options and add IP interfaces, if applicable.

Inserting MII Monitoring Options

Inserting MII monitoring options is only required if the device type is Bonding. For all other device types, the **MII Monitoring Options** tab is disabled.

1. Select **Configuration** > **Network** > **Devices**.
   The **Configuration** > **Network** > **Devices** page appears.
2. Select a server.
3. Click **Insert**.
   The **Configuration** > **Network** > **Devices [Insert]** page appears.
4. Click the **MII Monitoring Options** tab.
   The **MII Monitoring Options** tab appears.

5. Click **Primary Interface** to select None (for no interface) or the preferred interface from the pulldown list.
6. Enter the **Monitoring Interval**, if you do not wish to use the default setting.
7. Enter the **Upstream Delay**, if you do not wish to use the default setting.
8. Enter the **Downstream Delay**, if you do not wish to use the default setting.
9. Click the **General Options** tab.
10. Click **OK** to submit the information and return to the **Configuration** > **Network** > **Devices** page, or click **Apply** to submit the information and continue entering additional data.

The MII monitoring options are updated.

Inserting ARP Monitoring Options

Inserting ARP monitoring options is only required if the device type is Bonding. For all other device types, the **ARP Monitoring Options** tab is disabled.

1. Select **Configuration** > **Network** > **Devices**.
   The **Configuration** > **Network** > **Devices** page appears.
2. Select a server.
3. Click **Insert**.
   The **Configuration** > **Network** > **Devices [Insert]** page appears.
4. Click the **ARP Monitoring Options** tab.
   The **ARP Monitoring Options** tab appears.
5. Click **Primary Interface** to select None (for no interface) or the preferred interface from the pulldown list.
6. Enter the **Monitoring Interval**, if you do not wish to use the default setting.
7. Click **ARP Validation** to select a validation method from the pulldown list, if you do not wish to use the default setting.
8. Enter one or more IP addresses for the target device.

   Note: Multiple IP addresses are comma separated.

9. Enter an IP Address for the device.
10. Click **OK** to submit the information and return to the **Configuration** > **Network** > **Devices** page, or click **Apply** to submit the information and continue entering additional data.

The ARP monitoring options are updated.

Inserting IP Interfaces

The IP interfaces tab allows interfaces to be associated with a device.

1. Select **Configuration** > **Network** > **Devices**.
   The **Configuration** > **Network** > **Devices** page appears.
2. Select a server.
3. Click **Insert**.
   The **Configuration** > **Network** > **Devices [Insert]** page appears.
4. Click the **IP Interfaces** tab.
   The **IP Interfaces** tab appears.
5. Click **Add Row**.
   A textbox appears in which you can enter an IP Address for the device.
6. Enter an **IP Address** for the device.

7. Select a **Network Name**.
8. For each row, only one IP Address and Network Name can be specified. To specify additional rows, select **Add Row** and following Steps 6 and 7.
9. When you are finished adding IP Addresses, click **OK** to submit the information and return to the **Configuration** > **Network** > **Devices** page, or click **Apply** to submit the information and continue entering additional data.

The IP addresses are added.

Devices Elements

This table describes the elements of the **Configuration > Network > Devices** page.

Table 57: Devices Elements

Field	Description
Server	The server host name displayed in tabbed format at the top of the table
Device Name	The name of the device
Device Type	The device type. Supported types include: • Bonding • VLAN • Alias • Ethernet
Device Options	A collection of keyword value pairs for the device options
IP Interface (Network)	IP address and network name in the format: IP Address (network name)
Configuration Status	The configuration status of the device. The possible states are: • Discovered (provisioned directly on the server) • Configured (provisioned through the GUI; server update is complete) • Pending (update in progress) • Deferred (server cannot be reached for updates) • Error (specific error text is displayed in the Configuration Status field)

Editing a Device

Not all devices can be edited. Pre-configured devices created during the install process, for example, cannot be edited. A device that cannot be edited is distinguished using italic font.

Note: Before editing a device, generate a device report. The device report will serve as a record of the device's original settings. Print or save the device report for your records. For more information about generating a device report, see *Generating a Device Report*.

1. Select **Configuration** > **Network** > **Devices**
   The **Configuration** > **Network** > **Devices** page appears.
2. Click to select a server.
   The device data for the selected server appears.

3. Click to select a device and click **Edit.**

   Note: If the device cannot be edited, the **Edit** button will be disabled.

   If the device can be edited, the **Configuration** > **Network** > **Devices [Edit]** page appears.
4. Edit the available fields as necessary.
   See *Device Insert Elements* for details about the fields that appear on this page.

   Note: Fields that cannot be edited are disabled.

5. Click **OK** to submit the changes and return to the **Configuration** > **Network** > **Devices** page, or click **Apply** to submit the information and continue editing additional data.

The device is changed.

Deleting a Device

Not all devices can be deleted. In-use devices and pre-configured devices created during the install process, for example, cannot be deleted. A device that cannot be deleted is distinguished using italic font.

Note: Before deleting a device, generate a device report. The device report will serve as a record of the device's original settings. Print or save the device report for your records. For more information about generating a device report, see *Generating a Device Report*.

1. Select **Configuration** > **Network** > **Devices**.
   The **Configuration** > **Network** > **Devices** page appears.
2. Click to select a server.
   The device data for the selected server appears.
3. Click to select the device you want to delete. Alternately, you can delete multiple devices. To delete multiple devices, press and hold **Ctrl** and click to select specific devices.

   Note: If the device cannot be deleted, the **Delete** button will be disabled.

   Note: To delete multiple devices at one time, all selected devices must be deletable.

4. Click **Delete**.
   A confirmation box appears.
5. Click **OK**.
   The device is deleted.

Generating a Device Report

1. Select **Configuration** > **Network** > **Devices**
   The **Configuration** > **Network** > **Devices** page appears.
2. Click to select a server.
   The device data for the selected server appears.
3. To generate a report for all devices, click **Report**. To generate a report for a single device, click to select the device and click **Report**. Alternately, you can select multiple devices. To generate a report for multiple devices, press and hold **Ctrl** as you click to select specific devices.
   The Device Report is generated.
4. Click **Print** to print the report.
5. Click **Save** to save the report to a file.

Routes

Use the Route Configuration page to define specific routes for signaling traffic. You can specify routes for the entire network, specific servers, or specific server groups.

Routes Insert elements

This table describes the elements of the **Routes [Insert]** page. Elements are displayed for the selected server or server group.

Table 58: Routes Insert Elements

Field	Description	Data Input Notes
Route Type	The type of route	Format: Radio button Range: Default, Net, Host **Note:** The Default route option is available only if there is no default route configured on the target server. There can be no more than one IPv4 and one IPv6 default route defined.
Device	The network device name through which traffic is routed	Format: Pulldown list Range: Provisioned devices on the selected server
Destination	The destination network address **Note:** This field is disabled if the **Route Type** is default.	Format: Valid network address Range: Dotted quad decimal (IPv4) or colon hex (IPv6)
Netmask	A valid netmask for the destination network **Note:** This field is disabled if the **Route Type** is default. This field is disabled and set to 32 (IPv4) or 128 (IPv6) if the **Route Type** is host.	Format: Valid netmask Range: Valid netmask for the network in prefix length (IPv4 or IPv6) or dotted quad decimal (IPv4) Default: 24 for IPv4; 64 for IPv6
Gateway IP	The IP Address of the gateway for the route	Format: Valid IP address Range: Dotted quad decimal (IPv4) or colon hex (IPv6)

Inserting a Route

Routes cannot be created which use management networks (those configured after installation and designated in the Network listing in blue italic text). This ensures continued access to the GUI via the management networks.

1. Select **Configuration** > **Network** > **Routes**

The **Configuration** > **Network** > **Routes** page appears.

2. Using the tabs, select to add a server or server group to the entire network, or a specific network group.
3. Click **Insert**.
   The **Configuration** > **Network** > **Routes [Insert]** page appears.
4. Select a **Route Type**.

   For more information about **Route Type**, or any field on this page, see *Routes Insert elements*.
5. Select a **Device**.
6. Enter a **Destination**.

   Note: This step is required only if the **Route Type** is Net or Host. The field is disabled if the **Route Type** is Default.
7. Enter the **Netmask**.

   Note: This step is required only if the **Route Type** is Net. The field is disabled if the **Route Type** is Default or Host.
8. Enter the **Gateway IP**.
9. Click **OK** to submit the information and return to the **Configuration** > **Network** > **Routes** page, or click **Apply** to submit the information and continue entering additional data.

The route is added.

Routes Elements

This table describes the elements of the **Configuration > Network > Routes** page.

Table 59: Routes Elements

Field	Description
Server/Server Group	The server host name and server groups are displayed in tabbed format at the top of the table
Route Type	The type of route
Destination	The destination network IP address and prefix length in the format: IP Address/Prefix Length
Netmask	A valid netmask for the destination network
Gateway	The IP Address of the gateway for the route
Scope Status	The current number of servers where the route was successfully configured out of the total servers in the server group. (Note: This column is only present for server group routes)
Configuration Status	The configuration status of the route. The possible states are: • Discovered (provisioned directly on the server) • Configured (provisioned through the GUI; server update is complete) • Pending (update in progress)

Field	Description
	• Deferred (server cannot be reached for updates) • Error (specific error text is displayed in the Configuration Status field)

Editing a Route

Not all routes can be edited. Pre-configured routes created during the install process, for example, cannot be edited. A route that cannot be edited is distinguished using italic font.

Note: Before editing a route, generate a route report. The route report will serve as a record of the route's original settings. Print or save the route report for your records. For more information about generating a route report, see *Generating a Route Report*.

1. Select **Configuration** > **Network** > **Routes**.
   The **Configuration** > **Network** > **Routes** page appears.
2. Click to select a server or server group using the tabs at the top of the table.
   The route data for the selected server or server group appears.
3. Click to select a route and click **Edit.**

   Note: If the route cannot be edited, the **Edit** button will be disabled.

   If the route can be edited, the **Configuration** > **Network** > **Routes [Edit]** page appears.
4. Edit the available fields as necessary.
   See *Routes Insert elements* for details about the fields that appear on this page.

   Note: Fields that cannot be edited are disabled.

5. Click **OK** to submit the changes and return to the **Configuration** > **Network** > **Routes** page, or click **Apply** to submit the information and continue editing additional data.

The route is changed.

Deleting a Route

Not all routes can be deleted. In-use routes and pre-configured routes created during the install process, for example, cannot be deleted. A route that cannot be deleted is distinguished using italic font.

Note: Before deleting a route, generate a route report. The route report will serve as a record of the route's original settings. Print or save the route report for your records. For more information about generating a route report, see *Generating a Route Report*.

1. Select **Configuration** > **Network** > **Routes**.
   The **Configuration** > **Network** > **Routes** page appears.
2. Click to select a server or server group from the tabs at the top of the table.
   The route data for the selected server or server group appears.
3. Click to select the route you want to delete. Alternately, you can delete multiple routes. To delete multiple routes, press and hold **Ctrl** and click to select specific routes.

   Note: If the route cannot be deleted, the **Delete** button will be disabled.

   Note: To delete multiple routes at one time, all selected routes must be deletable.

4. Click **Delete**.

A confirmation box appears.

5. Click **OK** to delete the route
   The route is deleted.

Generating a Route Report

1. Select **Configuration** > **Network** > **Routes**.
   The **Configuration** > **Network** > **Routes** page appears.
2. Click to select a server or server group from the tabs at the top of the table.
3. Click **Report** to generate a report for all routes. To generate a report for a single route, click to select the route and click **Report**. Alternately, you can select multiple routes. To generate a report for multiple routes, press and hold **Ctrl** as you click to select specific routes.
   The Route Report is generated.
4. Click **Print** to print the report.
5. Click **Save** to save the report to a file.

Services

This application allows for flexible network deployment, with each installation being able to configure network elements with one or more networks and map a specific service to those networks. This flexibility allows for individual configuration of network routes. The system only defines the default route if the default network is defined for the network element.

Configuration of services must follow a specific chronology.

1. Configure the first NOAMP Network Element And Server.
2. Use the Services screen to map networks to services.

   Note: It is important that Services be configured after the insertion of the NOAMP NE and before configuring any servers.

3. Configure the first NOAMP server.
4. Configure the NOAMP server group.
5. Add the first NOAMP server to the group.
6. Configure the second NOAMP server.
7. Add the second NOAMP server to the group.
8. Configure the SOAM NE.
9. Configure the SOAM servers.
10. Configure the SOAM server group.
11. Add the SOAM servers to the group.
12. Configure any MP servers.
13. Add MP servers into server groups, as necessary.

Editing Service information

Services are set during installation of the system. However, you can edit network characteristics of the services. Use this procedure to edit existing service information:

1. Select **Configuration** > **Services**.
   The Services page appears.
2. Click **Edit**.
   The Services [Edit] page appears.
3. Select from the available choices to determine the Intra-NE Network.
4. Select from the available choices to determine the Inter-NE Network.
5. Select **Apply** to save the changes you have made and remain on this screen, or select **OK** to save the changes and return to the Services page.

Generating a Service Report

A service report provides a summary of the service configuration. This report can also be printed or saved to a file.

Use this procedure to generate a service report:

1. Select **Configuration** > **Services**.
   The Services page appears.
2. Click **Report**.
   The Services Report is generated.
3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.
5. Click **Back** to return to the Services page.

Servers

Servers are the processing units of the application. Servers perform various roles within the application. The roles are:

- Network OAM&P (NOAMP) - The NOAMP is one active and one standby server running the NOAMP application and operating in a high availability global configuration. It also provides a GUI which is used for configuration, user administration and the viewing of alarms and measurements.
- System OAM (SOAM) - The SOAM is the combination of an active and a standby application server running the SOAM application and operating in a high availability configuration. SOAM also provides a GUI used for local configuration and viewing alarms and measurements details specific to components located within the frame (SOAM, MP). The SOAM supports up to 8 MPs.

  Note: SOAM is not an available role in systems that do not support SOAMs.
- MP - MPs are servers with the application installed and are configured for MP functionality.
- Query Server (QS) - The Query Server is an independent application server containing replicated application data. A Query Server is located in the same physical frame as each NOAMP component.

The role you define for a server affects the methods it uses to communicate with other servers in the network. For more information about how each interface is used, refer to the Network Installation Guide that came with the product.

Add New Server Configuration Elements

This table describes the elements on the **Adding a new server** page:

Table 60: Add New Server Configuration Elements

Element	Description	Data Input Notes
Hostname	The defined name for the server. The name must be unique across the server table. Alphanumeric (A-Z, a-z, 0-9) and hyphen (-) characters are allowed. The Hostname must begin and end with an alphanumeric character.	Format: Alphanumeric (A-Z, a-z, 0-9) and hyphen (-) characters. Hostname must begin and end with an alphanumeric character. Range: Maximum length is 20 characters
Role	The defined type for the network element. The Role selected here affects which of the following IP Addresses are available to be configured.	Format: Pulldown list Range: Network OAM&P, System OAM, MP, Query Server **Note:** System OAM is not an available role in systems that do not support SOAMs.
System ID	System ID for the NOAMP or SOAM server.	Default = none Range = A 64-character string. Valid value is any text string.
Hardware Profile	The hardware profile of the server	Format: Pulldown list of customized options
Network Element Name	The network element must first be set up using the **Configuration** > **Network Elements** page.	Format: Pulldown list Range: A valid Network Element
Location	Optional, user supplied field to identify the location of the server.	Format: Text string Range: Maximum length is 15 characters
Interfaces: Network	The list of available interfaces from the hardware profile.	Format: n/a
Interfaces: IP Address	The IP address of the network	Format: numeric
Interfaces: Interface	The interface with which the IP address is associated. The list is populated with the available interfaces from the hardware profile. Typically, this list includes bond interfaces (e.g., bond0 and/or bond1). One interface is	Format: pulldown list

Element	Description	Data Input Notes
	displayed for each network in the network element.	
Interfaces: VLAN	This checkbox allows the user to decide whether to create a VLAN interface. If the box is checked, a VLAN interface is automatically created. If the box is not checked, the IP address is assigned directly to the interface selected from the pulldown list. Only one IP address can be associated with a non-VLAN interface (e.g., bond1). One checkbox is displayed for each interface.	Format: checkbox
Interfaces: Prefer	Selection of preferred NTP sources, multiple sources can be designated as preferred. Every NTP Server IP Address field has a corresponding "Prefer" checkbox.	Format: checkbox
Interfaces: NTP Server IP Address	The IP address of the NTP Server	Format: numeric

Inserting a Server

Servers can be inserted only after a network element has been provisioned.

Use this procedure to insert a server:

1. Select **Configuration** > **Servers**.
2. Click **Insert** at the bottom of the table.
3. Enter a **Hostname**. This is a user-defined name for the server. The server name must be unique across the server table.

   For more information about **Hostname**, or any field on this page, see *Add New Server Configuration Elements*.
4. Select a **Role**.
5. Enter the **System ID**.
6. Select a **Hardware Profile.**
7. Select a **Network Element Name**.

   Select from the network element names defined previously on the Network Element Configuration page.
8. Enter the **IP address** for the appropriate network in the Interfaces grid
9. Select the **Interface** in the Interfaces grid.
10. Select the **VLAN ID** for the network in the Interfaces grid, if applicable.
11. Select the **Prefer** checkbox for preferred sources.
12. Select **Add** to add the NTP Server IP Address. Enter the NTP Server IP Address in the text box.

13. Enter the **NTP Server IP Address** in the text box.
14. Select the **Prefer** checkbox for the NTP Server IP Addresses.
15. Enter a **Location**.
16. Click **OK** to submit the information and return to the Servers Configuration page, or click **Apply** to submit the information and continue entering additional data.

The server is added to the network databases.

Servers Configuration Elements

The **Servers Configuration** page lists all servers that are provisioned. This table describes the elements of the **Servers Configuration** page.

Element	Description
Hostname	The defined name for the server. The name must be unique across the server table. Alphanumeric (A-Z, a-z, 0-9) and hyphen (-) characters are allowed. The Hostname must begin and end with an alphanumeric character.
Role	The defined role for the network element. Types are: • Network OAMP - A pair of servers implementing OAMP functions for the entire network. There is only one pair of NOAMP Servers per network, and they comprise the NOAMP Network Element. There can be only two servers of this type in the Servers table. • System OAM - Pairs of servers implementing a centralized database and local OAM functions for each SO Network Element deployed. There can be only two servers of this type per signaling Network Element. **Note:** System OAM is not an available role in systems that do not support SOAMs. • MP - Each pair or cluster of servers implementing message processing functions. • Query Server - An independent application server that contains a replicated version of the PDBI database. It accepts replicated subscriber data from the NOAMP and stores it in a customer accessible database. The Role selected here affects which of the following IP Addresses and VLAN IDs are available to be set up.
System ID	The system ID
Server Group	The server groups to which the server belongs.
Network Element	The name of the network element that is associated with each server. The network element must first be configured using the **Configuration** > **Network Elements** page before it can be associated with a server.
Location	The location of the server. This field is optional.
Place	The Place that the server is assigned to.
Details	Lists provisioned IP addresses.

Viewing Servers

Use this procedure to view servers:

Select **Configuration** > **Servers**.

The Servers Configuration page appears.

Editing a Server

Servers that are currently in-service can be edited but the fields available for edit are limited and vary depending on the role. All servers, regardless of service state, can be edited to add, remove, or change NTP settings. Additionally, on OAM servers, System ID can be changed.

CAUTION

Caution: Operations, such as NTP sync, should be planned. Critical processes are temporarily shutdown in order to complete the action. This, or any other in-service operation, should only be run as directed by Oracle support personnel using documentation specific to your application and release.

Use this procedure to edit a server:

1. Select **Configuration** > **Servers**.
   The **Servers** page appears.
2. Click to select the server you want to edit.
3. Click **Edit**.
   The **Servers [Edit]** form appears.
4. Make the desired changes.
5. Click **OK** to save the changes and return to the **Servers** page. Click **Apply** to submit the changes and remain on the **Servers [Edit]** form to make additional changes or click **Cancel** to undo the changes and return the values to the previously saved values.

The server edits are submitted to the database.

Deleting a Server

Before a server can be deleted the following conditions must be true:

- The server is not part of a server group.
- The server is not configured as a server pair.

Use this procedure to delete a server:

1. Select **Configuration** > **Servers**.
2. Click to select the server you want to delete.
3. Click **Delete**.
   Click **Yes** to confirm.

Exporting a Server

The server **Export** button generates an installation script file used for hardware configuration. Use this procedure to export a single server. For information about how to export multiple servers at once, see *Exporting Multiple Servers*.

1. Select **Configuration** > **Servers**.
2. Click to select a server to export.
3. Click **Export**.

   The server data is exported to an SH file.
4. Click Info.
5. Click the **download** link to download the file.

Exporting Multiple Servers

The server **Export** button generates an installation script file used for hardware configuration. Use this procedure to export more than one server.

1. Select **Configuration** > **Servers**.
2. Press and hold **Ctrl** as you click to select multiple servers.
3. Click **Export**.

   Data for the selected servers is exported to individual SH files located on the **Status and Manage** > **Files** page.
4. Click **Info.**
5. Click the **Status and Manage** > **Files** link.
   The SH files for the server data exported in this procedure is located on the **Status and Manage** > **Files** page.

Generating a Server Report

Use this procedure to generate a server report:

1. Select **Configuration** > **Servers**.
2. Click to select the server for which you want to create a report.

   Note: To select multiple server groups, press and hold **Ctrl** as you click to select specific rows. Alternatively, if no servers are selected then all server groups appear in the report.
3. Click **Report**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

Server Groups

The Server Groups feature allows the user to assign a function, parent relationships, and levels to a group of servers that share the same role, such as OAMP, SOAM, and MP servers. The Server Groups feature also enables users to create new groups, add servers to existing groups, edit groups, delete servers and server groups, and generate reports that contain server group data.

The Server Group parent selection can now be modified for C-Level servers, dependent upon application allowing the change.

Server Groups Insert Elements

This table describes the elements of the **Insert Server Groups** page.

Table 61: Server Groups Insert Elements

Element	Description	Data Input Notes
Server Group Name	A unique name used to label the server group.	Format: Alphanumeric characters and underscore "_" are allowed. A minimum of one alphabetic character is required. **Note:** Server Group Name must not start with a digit. Range: Maximum length is 32 characters.
Level	The level of the servers belonging to this group.	Format: Pulldown menu Range: Levels A, B, or C
Parent	The parent server group that functions as the replication parent of the selected server group	Format: Pulldown menu **Note:** If the level of the group being inserted is A, then the parent field is not editable and NONE is displayed in the pulldown menu.
Function	The defined function for the server group.	Format: Pulldown menu Range: Functions supported by the system
WAN Replication Connection Count	Specify the number of TCP connections that will be used by replication over any WAN connection associated with this Server Group.	Range = An integer between 1 and 8 Default = 1

Inserting a Server Group

Use this procedure to configure a server group:

1. Select **Configuration** > **Server Groups**.
2. Click **Insert**.
   The **Insert Server Groups** page appears.

3. Enter the **Server Group Name.**

   For more information about **Server Group Name**, or any of the fields on this page, see *Server Groups Insert Elements*.
4. Select a **Level** from the pulldown menu.
5. Select a **Parent** from the pulldown menu.
6. Select a **Function** from the pulldown menu.
7. Enter a **WAN Replication Connection Count.**
8. Click **OK** to submit the information and return to the Server Groups page, or click **Apply** to submit the information and continue adding additional data.

Server Groups Configuration Elements

The **Server Groups Configuration** screen lists all server groups. The following information is displayed.

Table 62: Server Groups Configuration Elements

Element	Description
Server Group Name	A unique name used to label the server group. Alphanumeric characters and '_' are allowed. A minimum of one alphabetic character is required. The name cannot start with a digit. Maximum length is 32 characters.
Level	The level of the servers belonging to this group.
Parent	The parent server group that functions as the replication parent of the selected server group.
Function	The defined function for the server group.
Connection Count	The number of TCP connections that will be used by replication over any WAN connection associated with this Server Group.
Servers	The list of servers in the server group.

Server Groups Edit Elements

The **Edit Server Groups** page allows you to edit existing server groups. This table describes the elements of the **Edit Server Groups** page.

Table 63: Server Groups Edit Elements

Element	Description	Data Input Notes
Server Group Name	A unique name used to label the server group.	Format: Alphanumeric characters and underscore "_" are allowed. A minimum of one alphabetic character is required. Must begin with an alphabetic character. Range: Maximum length is 32 characters.

Element	Description	Data Input Notes
Function	The defined function for the server group.	This field cannot be edited.
WAN Replication Connection Count	The number of TCP connections that will be used by replication over any WAN connection associated with this Server Group.	Range = An integer between 1 and 8 Default = 1
Server	IP Address of the server to be used for clock synchronization. This field is optional.	Format: Valid IP address, or field may be left blank Range: Four, 8-bit octets separated by periods [The first octet = 1-255; the last three octets = 0-255] Dotted quad decimal (IPv4) or colon hex (IPv6) **Note:** Server is editable for A-Level server groups. C-Level server groups are editable if allowed by the application.
SG Inclusion	When checked, the server is included in the server group.	Checkbox
Preferred HA Role	When checked, the server is marked as a preferred spare. When marked as a preferred spare, the server only assumes an active or standby role if all the other servers in the server group are unavailable.	Checkbox
VIP Assignment: VIP Address	A virtual IP address shared by the servers in this group that have networking interfaces on the same layer-2 network.	Format: Valid IP address Range: Four, 8-bit octets separated by periods [The first octet = 1-255; the last three octets = 0-255] Dotted quad decimal (IPv4) or colon hex (IPv6)

Editing a Server Group

Once a server group is created, certain values can be edited, and available servers can be added to or deleted from the server group. Use this procedure to edit a server group:

1. Select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
   The **Edit Server Groups** page appears.

4. Edit the values you want to change.

   Fields that cannot be edited will be grayed out. For more information about these fields, or any of the fields in this procedure, see *Server Groups Edit Elements*.
5. Click **OK** to submit the information and return to the **Server Groups** page, or click **Apply** to submit the information and continue adding additional data.

Adding a server to a server group

Once a server group is created, servers can be added. Use this procedure to add a server to a server group:

1. Select **Configuration > Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
   The **Edit Server Groups** page appears. The Edit Server Groups page displays the servers in the network element that are possible candidates for inclusion in the server group.
4. To add a server to the server group, select the checkbox for **SG Inclusion**.When checked, the server will be included in the server group.
5. To add a virtual IP address, select **Add** in the **VIP Assignment** section and enter the virtual IP address.
6. Click **OK** to submit the information and return to the **Server Groups** page, or click **Apply** to submit the information and continue adding additional data.

Deleting a server from a server group

Use this procedure to delete a server from a server group:

1. Select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
   The **Edit Server Groups** page appears.
4. To delete a server from the server group, select the checkbox for **SG Inclusion**. When checked, the server will be included in the server group.
5. Click **OK** to submit the information and return to the **Server Groups** page.

Assigning a VIP to a server group

Use this procedure to assign a VIP to a server group.

Note: This procedure is optional and is only supported if the system supports VIP.

1. Select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
   The **Edit Server Groups** page appears.
4. Click **Add** to add a new VIP address to the server group.

   Note: Multiple VIP addresses can be added.

5. Insert the **VIP address**.
6. Click **OK** to submit the information and return to the **Server Groups** page, or click **Apply** to submit the information and continue adding additional data.

Removing a VIP from a server group

Use this procedure to remove a VIP address from a server group:

1. Select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
   The **Edit Server Groups** page appears.
4. Click to select the VIP you want to remove from the server group.
5. Click **Remove**.

   The VIP address is removed from the server group.
6. Click **OK** to submit the information and return to the **Server Groups** page, or click **Apply** to submit the information and continue adding additional data.

Deleting a Server Group

Use this procedure to delete a server group.

Note: Only a server group with no existing servers in the group can be deleted. For information about how to delete a server from a server group, see *Deleting a server from a server group*.

1. Select **Configuration** > **Server Groups**.
2. Click to select the server group you want to delete from the table.
3. Click **Delete**.

   A delete confirmation message appears in a pop up window.
4. Click **OK** to delete the server group.

   If you click **Cancel**, the server group will not be deleted, and you will be returned to the Server Groups page.

Server Group Report Elements

The report is divided into two sections and each section contains subsections.

Note: Fields with no data display "n/a" with the exception of Virtual IP Address(es) and NTP Server(s). Virtual IP Address(es) and NTP Servers(s) fields are optional. If no data exists for those fields, then the fields will not display in the report.

Table 64: Server Group Report Elements

Section	Subsection
Server Groups Summary	Each server group is listed individually with related general information. For details about these values, see *Server Groups Edit Elements*. • Name • Level • Connection Count • Parent • Function • Server(s) • Virtual IP Address(es)
Server Report	Each network element is listed individually with information about the related servers.

Generating a Server Group Report

Use this procedure to generate a server group report:

1. From the main menu select **Configuration** > **Server Groups**.
2. Click to select the server group for which you want to create a report.

   Note: To select multiple server groups, press and hold **Ctrl** as you click to select specific rows. Alternatively, if no servers are selected then all server groups appear in the report.

3. Click **Report**.
   The server group report appears.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

Resource Domains

The Resource Domains function allows you to assign servers to domains.

Add New Resource Domain Elements

This table describes the elements for adding a resource domain element:

Table 65: Add New Resource Domain Elements

Element	Description	Data Input Notes
Resource Domain Name	The name for the resource domain.	Format: Alphanumeric (A-Z, a-z, 0-9) and underscore (_) characters. Range: Maximum length is 32 characters

Element	Description	Data Input Notes
Resource Domain Profile	The profile associated with the resource domain.	Format: Pulldown list Range: None, Alexa1, Alexa2 Range for PDRA: Policy Binding, Policy DRA, Policy Session
Server Groups	The server groups associated with the resource domain	Format: Checkbox Range: NO_MP, NO_SG, SO_MP, SO_SG Range for PDRA Policy Binding: NO Server Group, Site1BindingPsbrMpSg, Site1DsrMp1Sg, Site1DsrMp2Sg, Site1SessionPsbrMpSg, Site1SoServerGroup Range for Policy DRA: BindingPsbr1MpSg, IpfeServerGroup, LabCSOAMSG2, LABDDSRMSG, LabDSOAMSG, NOAMP_SG, PDRASG, SOAM_SG, SessionPsbr1MpSg Range for Policy Session: NO Server Group, Site1BindingPsbrMpSg, Site1DsrMp1Sg, Site1DsrMp2Sg, Site1SessionPsbrMpSg, Site1SoServerGroup

Inserting a Resource Domain

Use this procedure to insert a resource domain:

1. Select **Configuration** > **Resource Domains**.
2. Click **Insert** at the bottom of the table.
3. Enter a **Resource Domain Name**. This is a user-defined name for the domain. The domain name must be unique.
4. Select a **Resource Domain Profile**.
5. Select a **Server Group**.
6. Click **OK** to submit the information and return to the Resource Domains Configuration page, or click **Apply** to submit the information and continue entering additional data.

The resource domain is added to the network database.

Editing a Resource Domain

Use this procedure to edit resource domain information

1. Select **Configuration** > **Resource Domains**.
2. Select the resource domain from the listing.
3. Click **Edit** at the bottom of the table.
4. Modify one or more of the resource domain information fields.
5. Click **OK** to submit the information and return to the Resource Domains Configuration page, or click **Apply** to submit the information and continue editing additional data.

The resource domain information is updated in the network database and the changes take effect immediately.

Viewing Resource Domains

Use this procedure to view resource domains:

Select **Configuration** > **Resource Domains**.

The Resource Domains configuration page appears.

Deleting a Resource Domain

Use this procedure to delete a resource domain:

1. Select **Configuration** > **Resource Domains**.
2. Click to select the resource domain you want to delete.

   Note: To prevent large service disruptions, you cannot delete a Resource Domain with a profile type or Policy Binding or Policy Session, unless the Policy DRA feature is deactivated. However, resource domains with a profile type of Policy DRA can be deleted without deactivation of the Policy DRA feature.
3. Click **Delete**.

   Click **Yes** to confirm.

The resource domain is deleted from the network database table.

Generating a Resource Domains Report

Use this procedure to generate a resource domains report:

1. Select **Configuration** > **Resource Domains**.
2. Click to select the resource domain for which you want to create a report.

   Note: To select multiple server groups, press and hold **Ctrl** as you click to select specific rows. Alternatively, if no servers are selected then all server groups appear in the report.
3. Click **Report**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

Places

The Places feature allows you to build associations for groups of servers at a single geographic location. These places can then be grouped into place associations, which create relationships between one or more place.

Places Insert Elements

This table describes the elements of the Places Insert page.

Table 66: Places Insert Elements

Element	Description	Data Input Notes
Place Name	A unique name used to label the place.	Format: Alphanumeric characters and underscore "_" are allowed. A minimum of one alphabetic character is required. Range: Maximum length is 32 characters.
Parent	The parent place group that functions as the replication parent of the selected place	Format: Pulldown menu Any place that has no servers assigned is eligible to be a parent
Place Type	The place type.	Format: Pulldown menu Range: Site (default option) or defined by the application.
Servers	List of the available servers in the NO or SO	Format: Checkbox

Inserting a Place

Use this procedure to configure a place:

1. Select **Configuration** > **Places**.
2. Click **Insert**.
3. Enter the **Place Name.**
   For more information about **Place Name**, or any of the fields on this page, see Place Insert Elements.
4. Select a **Parent** from the pulldown menu.
5. Select a **Place Type** from the pulldown menu.
6. Select the available **Servers** from the checklist.
7. Click **OK** to submit the information and return to the Places page, or click **Apply** to submit the information and continue adding additional data.

Editing a Place

Use this procedure to edit place information

1. Select **Configuration** > **Places**.
2. Select the place from the listing.
3. Click **Edit** at the bottom of the table.
4. Modify one or more of the place information fields.

5. Click **OK** to submit the information and return to the Places page, or click **Apply** to submit the information and continue editing additional data.

The place information is updated in the network database and the changes take effect immediately.

Deleting a Place

Use this procedure to delete a place.

1. Select **Configuration** > **Places**.
2. Click to select the place you want to delete from the table.

   Note: A Place cannot be deleted if it includes servers or is a Parent Place. Before deleting, disassociate any servers or remove Parent status.
3. Click **Delete**.

   A delete confirmation message appears in a pop up window.
4. Click **OK** to delete the place.

   If you click **Cancel**, the place is not deleted, and you are returned to the **Places** page.

Generating a Places Report

Use this procedure to generate a places report:

1. Select **Configuration** > **Places**.
2. Click to select the place for which you want to create a report.

   Note: To select multiple server groups, press and hold **Ctrl** as you click to select specific rows. Alternatively, if no servers are selected then all server groups appear in the report.
3. Click **Report**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

Place Associations

The Place Association function allows you to create relationships between places. Places are groups of servers at a single geographic location.

Place Association Insert Elements

This table describes the elements of the Place Association Insert page.

Table 67: Place Association Insert Elements

Element	Description	Data Input Notes
Place Association Name	A unique name used to label the place association.	Format: Alphanumeric characters and underscore "_" are allowed. A minimum of one alphabetic character is required. Range: Maximum length is 32 characters.
Place Association Type	The type of place association.	Format: Pulldown menu Range: defined by the application
Places	The places available to be grouped in this association.	Format: Checkbox Range: list of places defined using Places function

Inserting a Place Association

Use this procedure to configure a place association:

1. Select **Configuration** > **Place Association**.
2. Click **Insert**.
3. Enter the **Place Association Name.**

   For more information about **Place Association Name**, or any of the fields on this page, see Place Association Elements.
4. Select a **Place Association Type** from the pulldown menu.
5. Click **OK** to submit the information and return to the Place Associations page, or click **Apply** to submit the information and continue adding additional data.

Editing a Place Associations

Use this procedure to edit place associations information

1. Select **Configuration** > **Place Associations**.
2. Select the place association from the listing.
3. Click **Edit** at the bottom of the table.
4. Modify one or more of the place associations information fields.
5. Click **OK** to submit the information and return to the Place Associations Configuration page, or click **Apply** to submit the information and continue editing additional data.

The place association information is updated in the network database and the changes take effect immediately.

Deleting a Place Association

Use this procedure to delete a place association.

1. Select **Configuration** > **Place Associations**.
2. Click to select the place association you want to delete from the table.

   Note: You cannot delete a Place Association that includes grouped Places. Before deleting the Place Association, disassociate the Places from the Place Association

3. Click **Delete**.

   A delete confirmation message appears in a pop up window.
4. Click **OK** to delete the place association.

   If you click **Cancel**, the place association are not deleted, and you are returned to the Place Association page.

Generating a Place Associations Report

Use this procedure to generate a place associations report:

1. Select **Configuration** > **Place Associations**.
2. Click to select the place associations for which you want to create a report.
3. Click **Report**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

DSCP

Use the he Differentiated Services Code Point (DSCP) pages to configure service point codes. Through the DSCP Configuration page, Interface and Port DSCP information can be inserted and saved to the configuration.

Note: Port DSCP works on the destination port, but it is tagged on the source server. Detection occurs on inbound destination ports, but the inbound or outbound source port is changed.

Interface DSCP

The Interface Differentiated Services Code Point (DSCP) pages allow the user to configure server interfaces for service point codes. Through the Interface DSCP Configuration page, DSCP information can be inserted and saved to the configuration.

Interface DSCP Elements

This table describes the elements of the **Interface DSCP** insert page.

Note: The page tabs and elements reflect your site configuration.

Table 68: Interface DSCP Elements

Field	Description	Data Input Notes
Server	The name of the server in the selected group.	The name of the server in the selected tab.
Interface	The server interface name	Format: Pulldown list Range: Valid server interfaces
DSCP	DSCP value for the associated network interfaces	Format: Numeric Range: 0 to 63, inclusive Default: NA
Protocol	TCP or SCTP protocol	Format: Pulldown list Range: TCP or SCTP Default: TCP
Scope	The collection of servers in a given topology.	The scope can reflect the entire network or the scope of one of the configurable container tabs.

Inserting an Interface DSCP

Use the following procedure for inserting an interface DSCP.

1. Select **Configuration** > **DSCP** > **Interface DSCP**
2. Select the tab for Entire Network, NO_NE or SO_NE1.
3. Click **Insert**.
4. Select the **Interface** from the pulldown listing of available server interfaces.
5. Enter a valid **DSCP** value. A valid value is an integer between 0 and 63, inclusive.
6. Select **TCP or SCTP protocol** from the pulldown list.
7. Click **OK** to submit the information and return to the DSCP page, or click **Apply** to submit the information and continue entering additional data.

The new DSCP is added.

Deleting an Interface DSCP

Use the following procedure for deleting an interface DSCP.

1. Select **Configuration** > **DSCP** > **Interface DSCP**
2. Select the DSCP configuration to be deleted.
3. Click **Delete**.
   A confirmation box appears.
4. Click **OK** to delete the DSCP

Generating an Interface DSCP Report

An interface DSCP report provides a summary of the configuration of one or more DSCPs. Reports can be printed or saved to a file.

1. Select **Configuration** > **DSCP** > **Interface DSCP**
2. Click **Report** to generate a report for all DSCPs.
3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.

Port DSCP

The Port Differentiated Services Code Point (DSCP) pages allow the user to configure server ports for service point codes. Through the Port DSCP Configuration page, DSCP information can be inserted and saved to the configuration.

Port DSCP Elements

This table describes the elements of the Port DSCP Insert page.

Note: The page tabs and elements reflect your site configuration.

Table 69: Port DSCP Insert Elements

Field	Description	Data Input Notes
Server	The name of the server in the selected group.	The name of the server in the selected tab.
Port	A valid TCP or SCTP port	Format: Numeric Range: 1 to 65535, inclusive
DSCP	DSCP value for the associated port	Format: Numeric Range: 0 to 63, inclusive
Protocol	TCP or SCTP protocol	Format: Pulldown list
Scope	The collection of servers in a given topology.	The scope can reflect the entire network or the scope of one of the configurable container tabs.

Inserting a Port DSCP

Use the following procedure for inserting a Port DSCP.

1. Select **Configuration** > **DSCP** > **Port DSCP**
2. Select the tab for Entire Network, NO_NE or SO_NE1.

3. Click **Insert**.
4. Enter a valid **Port** value. A valid value is an integer between 1 and 65535, inclusive.
5. Enter a valid **DSCP** value. A valid value is an integer between 0 and 63, inclusive.
6. Select **TCP or SCTP protocol** from the pulldown list.
7. Click **OK** to submit the information and return to the DSCP page, or click **Apply** to submit the information and continue entering additional data.

Deleting a Port DSCP

Use the following procedure for deleting a Port DSCP.

1. Select **Configuration** > **DSCP** > **Port DSCP**
2. Select the DSCP configuration to be deleted.
3. Click **Delete**.
   A confirmation box appears.
4. Click **OK** to delete the DSCP

Generating a Port DSCP Report

A Port DSCP report provides a summary of the configuration of one or more DSCPs. Reports can be printed or saved to a file.

1. Select **Configuration** > **DSCP** > **Port DSCP**
2. Click **Report** to generate a report for all DSCPs.
3. Click **Print** to print the report.
4. Click **Save** to save the report to a file.

Chapter 5

Alarms and Events

Topics:

This section provides an overview of alarms and events. Application alarms and events are unsolicited messages used in the system for trouble notification and to communicate the status of the system to Operations Services (OS). The application merges unsolicited alarm messages and unsolicited informational messages from all servers in a network and notifies you of their occurrence. Alarms enable a network manager to detect faults early and take corrective action to prevent a degradation in the quality of service.

Since alarms from each server are merged into one table of alarms at the SOAM and NOAMP servers, alarms should be viewed at the SOAM or NOAMP servers. When you log in to the GUI at the SOAM server, only alarms within that Network Element are visible. However, if you log in to the GUI at the NOAMP server, all alarms in the entire system are visible.

The **Alarms and Events** menu also features a page for viewing and generating reports of SNMP traps.

Alarms and events defined

Alarms provide information pertaining to a system's operational condition that a network manager may need to act upon. An alarm might represent a change in an external condition, for example, a communications link has changed from connected to a disconnected state. Alarms can have these severities:

- Critical
- Major
- Minor
- Cleared — An alarm is considered inactive once it has been cleared, and cleared alarms are logged on the **Alarms & Events** > **View History** page.

Events note the occurrence of an expected condition, such as an unsuccessful login attempt by a user. Events have a severity of Info and are logged on the **View History** page.

The following figure shows how alarms and events are organized in the application.

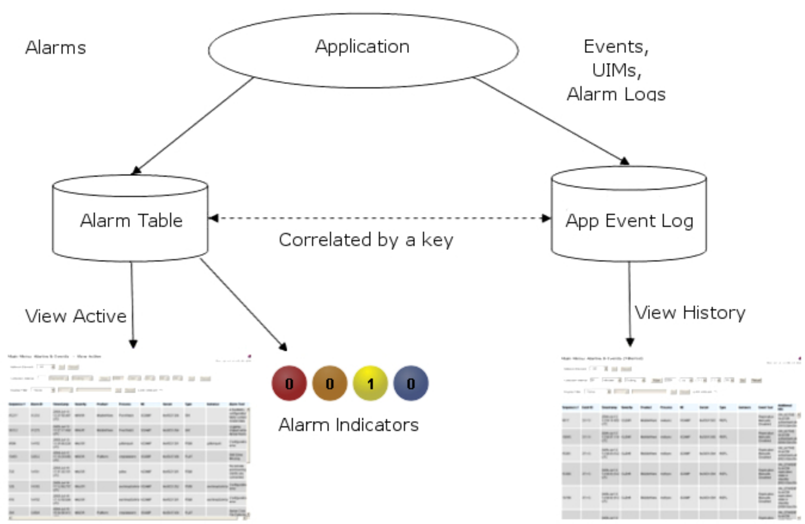


Figure 15: Flow of Alarms

Alarms and events are recorded in a database log table. Application event logging provides an efficient way to record event instance information in a manageable form, and is used to:

- Record events that represent alarmed conditions
- Record events for later browsing
- Implement an event interface for generating SNMP traps

Alarm indicators, located in the User Interface banner, indicate all critical, major, and minor active alarms. A number and an alarm indicator combined represent the number of active alarms at a specific level of severity. For example, if you see the number six in the orange-colored alarm indicator, that means there are six major active alarms.

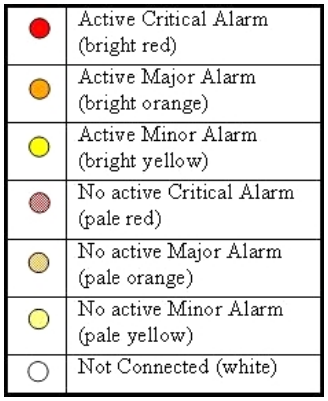


Figure 16: Alarm Indicators Legend

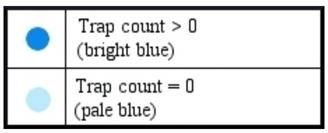


Figure 17: Trap Count Indicator Legend

Alarm and event ID ranges

The **Alarm ID** listed for each alarm falls into one of the following process classifications:

Table 70: Alarm/Event ID Ranges

Application/Process Name	Alarm ID Range
IPFE	5000-5099
OAM	10000-10999
IDIH	11500-11549
ComAgent	19800-19909
DSR Diagnostics	19910-19999
Diameter	8000-8299, 22000-22350, 22900-2999, 25500-25899
RBAR	22400-22424
Generic Application	22500-22599
FABR	22600-22640
PDRA	22700-22799
TVOE	24400-24499
CAPM	25000-25499
OAM Alarm Management	25500-25899

Application/Process Name	Alarm ID Range
Platform	31000-32700
DM-IWF	33000-33024
Load Generator	33025-33049
MD-IWF	33050-33099
GLA	33100-3149
DCA	33300-33630
I-SBR	33730-33830

Alarm and event types

This table describes the possible alarm/event types that can be displayed.

Note: Not all applications use all of the alarm types listed.

Table 71: Alarm and Event Types

Type Name	Type
APPL	Application
CAF	Communication Agent (ComAgent)
CAPM	Computer-Aided Policy Making (Diameter Mediation)
CFG	Configuration
CHG	Charging
CNG	Congestion Control
COLL	Collection
DAS	Diameter Application Server (Message Copy)
DB	Database
DIAM	Diameter
DISK	Disk
DNS	Domain Name Service
DPS	Data Processor Server
ERA	Event Responder Application
FABR	Full Address Based Resolution
HA	High Availability
HTTP	Hypertext Transfer Protocol

Type Name	Type
IDIH	Integrated DIH
IF	Interface
IP	Internet Protocol
IPFE	IP Front End
LOADGEN	Load Generator
LOG	Logging
MEAS	Measurements
MEM	Memory
NAT	Network Address Translation
NP	Number Portability
OAM	Operations, Administration & Maintenance
PCRF	Policy Charging Rules Function
PDRA	Policy Diameter Routing Agent
PLAT	Platform
PROC	Process
PROV	Provisioning
pSBR	Policy SBR
QP	QBus
RBAR	Range-Based Address Resolution
REPL	Replication
SCTP	Stream Control Transmission Protocol
SDS	Subscriber Database Server
SIGC	Signaling Compression
SIP	Session Initiation Protocol Interface
SL	Selective Logging
SS7	Signaling System 7
SSR	SIP Signaling Router
STK	EXG Stack
SW	Software (generic event type)
TCP	Transmission Control Protocol

Active alarms elements

This table describes the elements on the **View Active** alarms page.

Table 72: Active Alarms Elements

Active Alarms Element	Description
Sequence #	A system-wide unique number assigned to each alarm
Alarm ID	A unique number assigned to each alarm in the system. See *Alarm and event ID ranges* for more information.
Alarm Text	Description of the alarm. The description is truncated to 140 characters. **Note:** The **Alarm Text** field is not truncated in exports or reports.
Timestamp	Date and time the alarm occurred (fractional seconds resolution)
Severity	Alarm severity - Critical, Major, Minor
Product	Name of the product or application that generated the alarm
Process	Name of the process that generated the alarm
NE	Name of the Network Element where the alarm occurred
Server	Name of the server where the alarm occurred
Type	Alarm or Event Type, e.g., Process, Disk, Platform. See *Alarm and event types* for more information.
Instance	Instance of the alarm, e.g., Link01 or Disk02. The Instance provides additional information to help differentiate two or more alarms with the same number. This field may be blank if differentiation is not necessary

Viewing active alarms

Active alarms are displayed in a scrollable, optionally filterable table. By default, the active alarms are sorted by time stamp with the most recent alarm at the top.

Use this procedure to view active alarms.

Note: The alarms and events that appear in **View Active** vary depending on whether you are logged in to an NOAM or SOAM. Alarm collection is handled solely by NOAM servers in systems that do not support SOAMs.

1. Select **Alarms & Events** > **View Active**.
2. If necessary, specify filter criteria and click **Go**.
   The active alarms are displayed according to the specified criteria.

The active alarms table updates automatically. When new alarms are generated, the table is automatically updated, and the view returns to the top row of the table.

3. To suspend automatic updates, click any row in the table.
   The following message appears: `(Alarm updates are suspended.)`

   If a new alarm is generated while automatic updates are suspended, a new message appears: `(Alarm updates are suspended. Available updates pending.)`

   To resume automatic updates, press and hold **Ctrl** as you click to deselect the selected row.

Active alarms data export elements

This table describes the elements on the **View Active** > **Export** alarms page.

Table 73: Schedule Active Alarm Data Export Elements

Element	Description	Data Input Notes
Task Name	Name of the scheduled task	Format: Textbox Range: Maximum length is 40 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Task Name must begin and end with an alphanumeric character.
Description	Description of the scheduled task	Format: Textbox Range: Maximum length is 255 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Description must begin with an alphanumeric character.
Export Frequency	Frequency at which the export occurs	Format: Option Range: Once, Fifteen Minutes, Hourly, Daily, or Weekly Default: Once
Minute	If hourly or fifteen minutes is selected for Upload Frequency, this is the minute of each hour when the data is written to the export directory.	Format: Scrolling list Range: 0 to 59 Default: 0
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM

Element	Description	Data Input Notes
Day of Week	Day of week on which the export occurs	Format: Option Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday Default: Sunday

Exporting active alarms

You can schedule periodic exports of alarm data from the **Alarms and Events View Active** page. Active alarm data can be exported immediately, or you can schedule exports to occur daily or weekly. If filtering has been applied in the **View Active** page, only filtered data is exported.

During data export, the system automatically creates a CSV file of the filtered data. The file will be available in the file management area until you manually delete it, or until the file is transfered to an alternate location using the Export Server feature. For more information about using **Export Server**, see *Data Export*.

Alarm details can be exported to a file by clicking the **Export** button on the **View Active** page. The system automatically creates and writes the exported active alarm details to a CSV file in the file management area.

If filtering has been applied in the **View Active** page, only filtered, active alarms are exported.

Use this procedure to export active alarms to a file and to schedule a data export task.

1. Select **Alarms & Events** > **View Active**.
   The **View Active** page appears.
2. If necessary, specify filter criteria and click **Go**.
   The active alarms are displayed according to the specified criteria.
3. Click **Export**.
   The **Schedule Active Alarm Data Export** page appears. For more information about fields on this page, see *Active alarms data export elements*.
4. Enter the **Task Name**.
5. Select the **Export Frequency**.
6. Select the **Time of Day**.

   Note: Time of Day is not an option if **Export Frequency** equals **Once**.
7. Select the **Day of Week**.

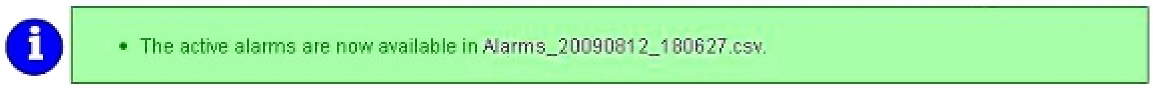
   Note: Day of Week is not an option if **Export Frequency** equals **Once**.
8. Click **OK** or **Apply** to initiate the active alarms export task.

   From the **Status & Manage** > **Files** page, you can view a list of files available for download, including the file you exported during this procedure. For more information, see *Viewing the file list*.

   Scheduled tasks can be viewed, edited, and deleted, and reports of scheduled tasks can be generated from **Status & Manage** > **Tasks**. For more information see:

- *Viewing scheduled tasks*
- *Editing a scheduled task*
- *Deleting a scheduled task*
- *Generating a scheduled task report*

9. Click **Export**.
   The file is exported.
10. Click the link in the green message box to go directly to the **Status & Manage** > **Files** page.



From the **Status & Manage** > **Files** page, you can view a list of files available for download, including the active alarms file you exported during this procedure.

Generating a report of active alarms

Use this procedure to generate a report.

1. Select **Alarms & Events** > **View Active**.
2. Specify filter criteria, if necessary, and click **Go**.
   The active alarms are displayed according to the specified criteria. Alternately, you can select multiple rows and generate a report using those. To select multiple rows, press and hold **Ctrl** as you click to select specific rows.
3. Click **Report**.
   The View Active Report can be printed or saved to a file.
4. Click **Print** to print the report.
5. Click **Save** to save the report to a file.

Graphing active alarms

The View Active alarm screen includes the ability to produce a set of summary graphs which provide statistical summaries of the active alarms. The active alarms can be graphed based on different topology characteristics or alarm data fields by selecting one or more components from the **Graph** pulldown list. The graphing selections are persistent.

The active alarm graphs display as a series of stacked bar graphs, one bar stack for each server. Each bar stack shows the count of critical, major and minor alarms for the selected items in the **Graph** pulldown list. Multiple graphs display side-by-side for each item selected. The graphs are displayed above the active alarms grid listing.

Use this procedure to graph active alarms:

1. Select **Alarms & Events** > **View Active**.
2. If necessary, specify filter criteria In the **Filter** pulldown list and click **Go**.

The selected Filter criteria are applied to all Server Group tabs. The active alarms that meet the specified criteria display.

3. Specify one or more graphical information components from the **Graph** pulldown list. Valid components are:

Topology Components	**Alarm Data Field Components**
Network Element	Event ID
Server	Severity
Server Group	Product
Resource Domain	Process
Place	Server
Place Association	Type

Note: Server is both a topology component and a data field in the active alarm data grid display.

The graphs for the selected components display above the tabbed area.

4. To adjust the graph viewing area, click and hold the slider above the graph while adjusting the proportions with the mouse.
5. To remove one or more graphs, de-select the choices from the **Graph** pulldown list.
If only some choices are deselected, the deselected graphs disappear. If all choices are deselected, the graph display disappears.

Active alarms quick filter

The individual information in the bar stacks of the active alarm graphs can be used to further filter the alarm information in the current Server Group tab. This allows a more focused, quick look at the alarms. The quick filter selection(s) are not persistent. The quick filter settings are cleared once the user browses away from the **View Active Alarms** page.

Quick filter selections from the graph are applied to the grid and all graphs displayed within the current Server Group tab of the **View Active Alarms** page. For example, if the portion of the stacked bar graph that displays the critical alarms is selected, the grid filters to show critical platform alarms and the summary statistics are recalculated to adjust the graphs. If additional portions of the graphs are selected, both the grid and the graphs continue to be filtered according to the selections.

Note: Although the quick filter is applied to the grid display, the quick filter criteria are not applied to generated **Reports** and **Exports** of active alarm data. Use the **Filter** pull down menu in the toolbar to filter the data.

Once active alarms have been graphed, use this procedure to apply a quick filter to active alarms in a server group:

1. To add a quick filter, select a portion of the stacked bar graph to filter. The stacked bar displays lists of active alarms by the alarm severity.

   Note: Alarm severity types are displayed using the following color distinctions:

   - Critical - Red

- Major - Orange
- Minor - Yellow

Upon selection, the filtered graph portion displays green to indicate it is being used as a filter.

2. Repeat the previous step as needed to filter additional portions of the remaining bar graphs.
3. To **remove all** quick filtering selections from the active Server Group tab, click **Clear Selections**. The display grid and all graphs display with no quick filtering.
4. To **remove individual** quick filtering selections from the active Server Group tab, select the portion of the stacked bar graph that is displayed in green.
The display grid and all graphs recalculate based on the remaining selections.

Historical alarms and events elements

This table describes the elements on the **View History** alarms and events page.

Table 74: Historical Alarms Elements

Historical Alarms Element	Description
Sequence #	A system-wide unique number assigned to each alarm/event.
Event ID	A unique number assigned to each alarm/event in the system.
Event Text	Description of the alarm/event. The description is truncated to 140 characters. If the description is truncated, a link to the alarm report is appended.
Timestamp	Date and time the alarm/event occurred (fractional seconds resolution).
Severity	Alarm/event severity - Critical, Major, Minor and Info.
Additional Info	Any additional information about the alarm/event that might help fix the root cause of the alarm/event. **Additional Information** is truncated to 140 characters. **Note: Additional Info** field is not truncated in exports or reports.
Product	Name of the product or application that generated the alarm/event.
Process	Name of the process that generated the alarm/event.
NE	Name of the Network Element where the alarm/event occurred.
Server	Name of the server where the alarm/event occurred.
Type	Alarm or Event Type, e.g., Process, Disk, Platform. See *Alarm and event types* for more information.
Instance	Instance of the alarm/event, e.g., Link01 or Disk02. The Instance provides additional information to help differentiate two or more alarms/events with the same number. This field may be blank if differentiation is not necessary.

Viewing alarm and event history

All historical alarms and events are displayed in a scrollable, optionally filterable table. The historical alarms and events are sorted, by default, by time stamp with the most recent one at the top. Use this procedure to view alarm and event history.

Note: The alarms and events that appear in **View History** vary depending on whether you are logged in to an NOAM or SOAM. Alarm collection is handled solely by NOAM servers in systems that do not support SOAMs.

1. Select **Alarms & Events** > **View History**.
2. If necessary, specify filter criteria and click **Go**.

   Note: Some fields, such as **Additional Info**, truncate data to a limited number of characters. When this happens, a **More** link appears. Click **More** to view a report that displays all relevant data.

   Historical alarms and events are displayed according to the specified criteria.

   The historical alarms table updates automatically. When new historical data is available, the table is automatically updated, and the view returns to the top row of the table.
3. To suspend automatic updates, click any row in the table.
   The following message appears: `(Alarm updates are suspended.)`

   If a new alarm is generated while automatic updates are suspended, a new message appears: `(Alarm updates are suspended. Available updates pending.)`

   To resume automatic updates, press and hold **Ctrl** as you click to deselect the selected row.

Historical events data export elements

This table describes the elements on the **View History** > **Export** page.

Table 75: Schedule Event Data Export Elements

Element	Description	Data Input Notes
Task Name	Name of the scheduled task	Format: Textbox Range: Maximum length is 40 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Task Name must begin and end with an alphanumeric character.
Description	Description of the scheduled task	Format: Textbox Range: Maximum length is 255 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Description must begin with an alphanumeric character.

Element	Description	Data Input Notes
Export Frequency	Frequency at which the export occurs	Format: Options Range: Fifteen Minutes, Hourly, Once, Weekly, or Daily Default: Once
Minute	If hourly or fifteen minutes is selected for Upload Frequency, this is the minute of each hour when the data is written to the export directory.	Format: Scrolling list Range: 0 to 59 Default: 0
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM
Day of Week	Day of week on which the export occurs	Format: Options Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday Default: Sunday

Exporting alarm and event history

You can schedule periodic exports of historical data from the **Alarms and Events View History** page. Historical data can be exported immediately, or you can schedule exports to occur daily or weekly. If filtering has been applied in the **View History** page, only filtered data is exported.

During data export, the system automatically creates a CSV file of the filtered data. The file is available in the file management area until you manually delete it, or until the file is transferred to an alternate location using the Export Server feature. For more information about using **Export Server**, see *Data Export*.

The details of historical alarms and events can be exported to a file by clicking the **Export** button on the **View History** page. The system automatically creates and writes the exported historical alarm details to a CSV file in the file management area.

If filtering has been applied in the **View History** page, only filtered historical alarms and events are exported. Use this procedure to export alarm and event history to a file, and schedule a data export task.

1. Select **Alarms & Events** > **View History**.
   The **View History** page appears.
2. If necessary, specify filter criteria and click **Go**.
   The historical alarms and events are displayed according to the specified criteria.
3. Click **Export**.

The **Schedule Event Data Export** page appears.

4. Enter the **Task Name**.
   For more information about **Task Name**, or any field on this page, see *Historical events data export elements*.
5. Select the **Export Frequency**.
6. If you selected Hourly, specify the **Minutes.**
7. Select the **Time of Day**.

   Note: Time of Day is not an option if **Export Frequency** equals **Once**.

8. Select the **Day of Week**.

   Note: Day of Week is not an option if **Export Frequency** equals **Once**.

9. Click **OK** or **Apply** to initiate the data export task.
   The data export task is scheduled. From the **Status & Manage** > **Files** page, you can view a list of files available for download, including the alarm history file you exported during this procedure. For more information, see *Viewing the file list*.

   Scheduled tasks can be viewed, edited, and deleted, and reports of scheduled tasks can be generated from **Status & Manage** > **Tasks**. For more information see:

   - *Viewing scheduled tasks*
   - *Editing a scheduled task*
   - *Deleting a scheduled task*
   - *Generating a scheduled task report*

10. Click **Export**.
    The file is exported.
11. Click the link in the green message box to go directly to the **Status & Manage** > **Files** page.

    From the **Status & Manage** > **Files** page, you can view a list of files available for download, including the alarm history file you exported during this procedure.

Generating a report of historical alarms and events

Use this procedure to generate a report.

1. Select **Alarms & Events** > **View History**.
2. Specify filter criteria, if necessary, and click **Go**.
   The historical alarms and events are displayed according to the specified criteria.
3. Click **Report**.
   The View History Report can be printed or saved to a file.
4. Click **Print** to print the report.
5. Click **Save** to save the report to a file.

View Trap Log

The **View Trap Log** page allows you to monitor traps from external application equipment, such as switches and enclosures. The purpose of monitoring traps is to gain early warning of possible service impacting conditions. **View Trap Log** provides a visual indicator of active, existing conditions. It also provides a detailed log recording the historical conditions present in the external monitored hardware and important background information for investigating the root cause of the condition.

View Trap Log elements

This table describes the elements on the **View Trap Log** page.

Table 76: View Trap Log Elements

Element	Description
Timestamp	The timestamp (in UTC) when the trap record was collected on the current system.
OID	The Object Identifier (OID) for the trap.
upTime	The uptime as reported by the monitored external equipment.
Trap Collector	The name of the server that first logged the trap.
Trap Source	The external hostname (or IP, if name cannot be resolved) for the trap source.
VarBinds	The OID/value pairs found in the varbind list. **Note:** Only the first few OID/value pairs display. A link to the report for the record is added if the varbind list is truncated.
Acknowledge All Acknowledge	When **Acknowledge All** is clicked, up to 2000 traps selected by the filter are cleared. Acknowledged traps are removed from both the trap count indicator and the **View Trap Log** page. **Note:** **Acknowledge All** is the default setting for this button. When one or more traps are selected, the button toggles to **Acknowledge**, and only the selected traps are affected.
Unacknowledge All Unacknowledge	When **Unacknowledge All** is clicked, all previously acknowledged traps selected by the filter reappear on the page. Unacknowledged traps are added to the trap count indicator. **Note:** **Unacknowledge All** is the default setting for this button. When one or more traps are selected, the button toggles to **Unacknowledge**, and only the selected traps are affected.

Element	Description
Report All Report	When **Report All** is clicked, a report is generated that contains information about the first 25 traps selected by the filter. **Note:** **Report All** is the default setting for this button. When one or more traps are selected, the button toggles to **Report**, and only the selected traps are included in the report.
Show: Ack'ed	Selection of this checkbox shows (if checked) or hides (if unchecked) the acknowledged trap records. **Note:** This checkbox is a filter option that is only available on the **View Trap Log** page.

Viewing trap logs

Trap logs are displayed in a scrollable, optionally filterable table.

1. Select **Alarms & Events** > **View Trap Log**.
2. If necessary, specify filter criteria and click **Go**.
3. If necessary, click to select any traps you want to acknowledge.

   Note: Acknowledging a trap causes the trap to be removed from the table and from the trap count indicator. For more information, see *View Trap Log elements*.

   Alternately, click **Acknowledge All** to acknowledge all traps, or click **UnAcknowledge All** to show all traps in the table once again.

   The trap log table updates automatically. When new traps are available, the table is automatically updated, and the view returns to the top row of the table.
4. To suspend automatic updates, click any row in the table.
   The following message appears: `(SNMP Trap updates are suspended.)`

   If a new trap is generated while automatic updates are suspended, a new message appears: `(SNMP Trap updates are suspended. Available updates pending.)`

   To resume automatic updates, press and hold **Ctrl** as you click to deselect the selected row.

View Trap Log Report elements

This table describes the elements on the **View Trap Log Report** page.

Table 77: View Trap Log Report Elements

Element	Description
acked	Indicates whether the trap has been acknowledged.

Element	Description
	Value = True or False
duplicate	Indicates whether the trap has been marked as a duplicate. Value = True or False
trapId	The trap ID is an internal sequence number to identify specific traps from the same source.
OID	The Object Identifier (OID) for the trap.
upTime	The upTime as reported by the monitored external equipment.
srcNode	The name of the server that first logged the trap.
networkElement	The Network Element of the server that first logged the trap.
timeStamp	The timestamp (in UTC) when the trap record was collected on the current system. **Note:** This is the timestamp used when specifying the collection interval.
srcTimeStamp	The time (in UTC) when the specific trap record was received at the system that first logged the trap.
Trap Source	The external hostname (or IP, if name cannot be resolved) for the trap source.
trapSourceIP	The IP address of the external hardware being monitored.
varbind	The specific OID/value pairs found in the varbind list. There is a varbind entry for each varbind in the logged trap record.

Generating a trap log report

Use this procedure to generate a report..

1. Select **Alarms & Events** > **View Trap Log**.
2. Click to select the trap log for which you want to create a report.

   Note: If no trap is selected, the report contains data about the first 25 traps selected by the filter. Alternately, you can select multiple rows and generate a report using those. To select multiple rows, press and hold **Ctrl** as you click to select specific rows.
3. Click **Report**.

   Note: When no trap is selected, the button toggles to **Report All**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report.

Chapter 6

Security Log

Topics:

This section provides an overview of security log options. The **Security Log** page allows you to view the historical security logs from all configured servers. Security logs are displayed in a scrollable, optionally filterable table. Security log data can be exported and then retrieved from the **Status & Manage** > **Files** page.

The **Export** function allows you to export security log files from one or more servers to the file management storage area of the server to which your GUI session is connected. Files in the file management storage area can be viewed from the **Status & Manage** > **Files** page. The logging feature is an OAM function, so you can be connected to either a NOAMP server or an SOAM server (but not an MP server).

The system automatically creates and writes the exported security log details to a CSV file in the file management area, as the following figure shows. If filtering has been applied in the **View Active** page, only filtered active alarms are exported.

CSV files can be downloaded from the file management storage area to your computer, such as your client PC, using the **Status & Manage** > **Files** page. See *Files* for steps on how to download files to your computer.

Security Log View History elements

This table describes the elements of the **Security Log** > **View History** page.

Table 78: Security Log View History Elements

Security Log History Element	Element Description
Timestamp	The date and time the security record was generated (fractional seconds resolution).
User	The user initiating the action.
Sess ID	The session identifier.
Remote IP	The remote IP address for the user.
Message	Summary details about the action which generated the security record.
Status	The status of the action, either SUCCESS or ERROR.
Screen	The page on which the action occurred, the Login page, for example.
Action	The user action, login, for example.
Details	Additional details about the action which generated the security record.
Server	The server which processed the action.

Viewing security log files

Use this procedure to view security log files.

1. Select **Security Log** > **View History**.
2. Specify the **Collection Interval**.
3. If necessary, specify filter criteria and click **Go**.

   Note: Some fields, such as **Details**, truncate data to a limited number of characters. When this happens, a **More** link appears. Click **More** to view a report that displays all relevant data.

The security log history displays sorted by collection time stamp.

Note: There are two relevant time stamps for the security log: the time stamp of the event and the time stamp for when the record was merged. The time stamps display initially using the source time, which makes the report appear unordered. However, the report is indeed sorted by collection time.

Security log data export elements

This table describes the elements on the **Security Log** > **View History [Export]** page.

Table 79: Schedule Security Log Data Export Elements

Element	Description	Data Input Notes
Task Name	Name of the scheduled task	Format: Textbox Range: Maximum length is 40 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Task Name must begin and end with an alphanumeric character.
Description	Description of the scheduled task	Format: Textbox Range: Maximum length is 255 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Description must begin with an alphanumeric character.
Export Frequency	Frequency at which the export occurs	Format: Options Range: Fifteen Minutes, Once, Hourly, Weekly, or Daily Default: Once
Minute	If hourly or fifteen minutes is selected for Export Frequency, this is the minute of each hour when the data is written to the export directory.	Format: Textbox or Scrolling List Range: 0 to 59 Default: 0
Time of Day	Time of day the export occurs	Format: Scrolling List Range: 15-minute increments Default: 12:00 AM
Day of Week	Day of week on which the export occurs	Format: Options Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday Default: Sunday

Exporting security log files

You can schedule periodic exports of security log data from the **Security Log View History** page. Security log data can be exported immediately, or you can schedule exports to occur daily or weekly. If filtering has been applied in the **View History** page, only filtered data is exported.

During data export, the system automatically creates a CSV file of the filtered data. The file will be available in the file management area until you manually delete it, or until the file is transfered to an alternate location using the Export Server feature. For more information about using **Export Server**, see *Data Export*.

Use this procedure to export security log files and to schedule a data export task.

1. Select **Security Log** > **View History**.

   The **View History** page appears.
2. If necessary, specify filter criteria and click **Go**.
   The security log files are displayed according to the specified criteria.
3. Click **Export**.
   The **Schedule Security Log Data Export** page appears.
4. Enter the **Task Name**.
   For more information about **Task Name**, or any field on this page, see *Security log data export elements*.
5. Enter a **Description** for the export task.
6. Select the **Export Frequency**.
7. If you selected Hourly as the export frequency, select the **Minute** of each hour for the data export.
8. Select the **Time of Day**.

   Note: Time of Day is not an option if **Export Frequency** equals **Once**.
9. Select the **Day of Week**.

   Note: Day of Week is not an option if **Export Frequency** equals **Once**.
10. Click **OK** or **Apply** to initiate the security log export task.

    From the **Status & Manage** > **Files** page, you can view a list of files available for download, including the file you exported during this procedure. For more information, see *Viewing the file list*.

    Scheduled tasks can be viewed, edited, and deleted, and reports of scheduled tasks can be generated from **Status & Manage > Tasks**. For more information see:

    - *Viewing scheduled tasks*
    - *Editing a scheduled task*
    - *Deleting a scheduled task*
    - *Generating a scheduled task report*
11. Click **Export**.
    The file is exported.
12. Click the link in the green message box to go directly to the **Status & Manage** > **Files** page.

From the **Status & Manage** > **Files** page, you can view a list of files available for download, including the security log history you exported during this procedure.

If an export fails for any reason, an error message appears indicating this failure.

Note: Only one export operation at a time is supported on a single server. If an export is in progress from another GUI session when you click **Export**, a message is displayed and the export does not start. You must wait until the other export is complete before you can begin your export.

Generating a Security Log report

Use this procedure to generate a report.

1. Select **Security Log** > **View History**.
2. Specify the **Collection Interval**.
3. Specify the filter criteria, if necessary, and click **Go**.
   The security log files are displayed according to the specified criteria. Alternately, you can select multiple rows and generate a report using those. To select multiple rows, press and hold **Ctrl** as you click to select specific rows.
4. Click **Report**.
   The Security Log Report can be printed or saved to a file.
5. Click **Print** to print the report.
6. Click **Save** to save the report to a file.

Chapter

7

Status and Manage

Topics:

This section describes how to view and manage the various types of data generated by the system.

Network Elements

The Network Elements page provides the status of network elements as well as a location in which you can manage Customer Router Monitoring. Customer Router Monitoring, if enabled, monitors connectivity from the system to customer network gateways.

Network elements status elements

This table describes the elements of the **Status & Manage** > **Network Elements** page.

Table 80: Network Elements Status Elements

Network Elements Status Element	Description
Network Element Name	The network element name associated with each server hostname. Each configured network element in the system is listed here.
Customer Router Monitoring	Indicates whether router monitoring is enabled or disabled.
Enable Ping	A button that enables Customer Router Monitoring for the selected network element.
Disable Ping	A button that disables Customer Router Monitoring for the selected network element.

Enabling and disabling ping on Network Elements

This procedure describes how to enable or disable Customer Router Monitoring on selected Network Elements.

1. Select **Status & Manage** > **Network Elements**.
2. Click to select a Network Element.
3. Click **Enable Ping** to enable Customer Router Monitoring, or click **Disable Ping** to disable Customer Router Monitoring.

   A confirmation window appears.
4. Click **OK** to continue.

   A progress bar that displays the message "Please wait..." appears.

A message appears in the **Information** area of the screen to confirm the success of the procedure. The Customer Router Monitoring status has been changed.

If the procedure fails, an error message appears. Repeat steps *Step 2* through *Step 4*. If the problem persists, contact My Oracle Support.

Server

The **Server** page provides a single point for monitoring collected data, isolating problems, and performing actions required for server maintenance. This page provides roll-up status for six subsystems on each server defined in the network. You can navigate to individual subsystem status pages for more detailed information with a single click on the **Server** page.

Server status elements

This table describes the elements on the **Status & Manage** > **Server** page.

Table 81: Server Status Elements

Server Status Element	Description
Network Element	The network element name associated with each Server Hostname.
Server Hostname	The server hostname. All servers in the system are listed here.
Appl State	An administrative state that reflects the state of the application running on each server. Possible states are Enabled, Disabled, and Unk (Unknown indicates the application state cannot be determined due to an error).
Alm	Aggregated alarm status for each server. Possible values are Norm, Err, Warn, and Unk.
DB	Aggregated database status for each server. Possible values are Norm, Err, Warn, Unk, and Man.
Reporting Status	Reporting status for each server. Possible values are Norm, Err, Warn, Unk, and Man.
Proc	Aggregated process status for each server. Possible values are Norm, Err, Unk, and Man.

Server Status

Each server collects performance data and status information for several subsystems. Since the system may consist of hundreds of geographically diverse servers, you need the ability to monitor this data and quickly isolate problems.

There are several aspects to monitoring server status. You can monitor the administrative state of each server in the system, as well as the status of the alarms, replication, collection, high availability, database, and process systems on each server.

The **Application State** field for each server displays the current administrative state of the application running on that server. Stopping application software places it in the Disabled **Application State**. Restarting application software places it in the Enabled **Application State**. Servers that are restarted by clicking **Restart** restart all application processes, regardless of their current state.

Note: Enabled and Disabled are administrative states. They do not reflect the current status or running state of the application software.

The Collection subsystem gathers status and alarm information from all other subsystems. Each of these subsystems reports varying degrees and severities of status. The status reported is not the same between subsystems. For this reason, the **Server Status** page provides a common status reporting framework to help identify problems at a server level.

Reporting status framework

This table describes the reporting framework:

Table 82: Reporting Status Framework

Reporting Status	Description
Norm (Normal)	The subsystem is operating as expected.
Warn (Warning)	The subsystem is experiencing one or more minor problems.
Err (Error)	The subsystem is experiencing one or more Major or Critical problems.
Man (Manual Maintenance)	The subsystem has been placed in a manually assigned state.
Unk (Unknown)	No information is available for the subsystem. When there is a problem gathering data in the Alarm, HA, or Database subsystems, the Collection subsystem sends a status of **unknown**.

Not all of the subsystems report status per server. The HA Status subsystem shares some status information between two servers. The **Server** page combines status information into a single status per subsystem per server.

How status is reported for each subsystem is explained in more detail in these sections:

- *Alarm status elements*
- *HA status elements*
- *Database status elements*
- *Process status elements*

Alarm status elements

Alarm status is derived from all of the alarms present on a server. For information on the alarms subsystem, see *Alarms and events defined*. This table describes the possible alarm severities and their equivalent reporting statuses on the **Server**page.

Table 83: Alarm Status vs Reporting Status

Alarm Status	Reporting Status Equivalent	Priority	Color
Unknown	Unk	1 (highest)	Red
Critical	Err	2	Red

Alarm Status	Reporting Status Equivalent	Priority	Color
Major	Err	3	Orange
Minor	Warn	4	Yellow
None	Norm	5 (lowest)	-

Database status elements

The **Server** page combines the individual status, maintenance, and the collection delivery mechanism into a single database status. The highest priority status is the one reported to the **Server** page.

Note: Unknown is the status reported when a failure prevents the reporting or the collection of database status.

Table 84: Database Status vs Reporting Status

Database Status	Reporting Status Equivalent		Priority	Color
	Maintenance in Progress	Maintenance NOT in Progress		
Unknown	Unk	Unk	1 (highest)	Red
Critical	Man	Err	2	Red
Major	Man	Err	3	Red
Minor	Man	Warn	4	Yellow
Normal	Man	Norm	5 (lowest)	-

HA status elements

HA Status is derived from the **HA Status** and **HA Availability** fields on the **HA Status** page. The collection mechanism is combined with status and availability but not with the forced standby state.

The **Server** page reports High Availability manual maintenance status (forced standby) differently from other status subsystems. Most manual maintenance statuses are stored on the affected server, collected to the reporting server, and displayed. The forced standby state is replicated rather than collected, and is therefore available directly on the reporting server.

Note: Unknown is the status reported when a failure prevents the reporting or the collection of HA availability.

Table 85: HA Status vs Reporting Status

HA Status	Reporting Status Equivalent		Priority	Color
	Forced Standby	NOT Forced Standby		
Unknown	Man	Unk	1 (highest)	Red
Offline	Man	Err	Err	2

HA Status	Reporting Status Equivalent		Priority	Color
	Forced Standby	NOT Forced Standby		
Failed	Man	Err	3	Red
Degraded	Man	Warn	4	Yellow
Normal	Man	Norm	5 (lowest)	-

Process status elements

The **Server** page combines the individual process status and the collection delivery mechanism into a single process status. The highest priority status is the one reported to the **Status** page. Processes which are intentionally not running on the server do not show up in process status.

Note: Unknown is the status reported when a failure prevents the reporting or the collection of process status.

Table 86: Process Status vs Reporting Status

Process Status	Reporting Status Equivalent		Priority	Color
	Application Disabled	Application Enabled		
Unknown	Man	Unk	1 (highest)	Red
Pend	Man	Err	2	Red
Kill	Man	Norm	3	-
Up	Man	Norm	4 (lowest)	-

Server errors

There are three ways to view servers with alarm status other than Normal:

- **Viewing the Server Status page**: All servers appear on this page along with the highest alarm for each subsystem.
- **Mousing over an aggregated server status**: The underlying status reported by the subsystem appears when the cursor moves over that status.
- **Viewing the aggregated server status**: The aggregated status for each subsystem is a link to the selected subsystem's page. The page provides details for the selected server only. Click on the link to view the status for the selected server.

Aggregated server status elements

Clicking a status link opens the status page that corresponds to the selected column and filters that page by the server corresponding to the selected row.

Table 87: Click-Through Status Screen

Server Status Column	Corresponding Status Page
Alm	**Alarm History** Page - see *Viewing alarm and event history*
DB	**Database Status** Page - see *Database*
HA	**High Availability Status** Page - see *HA (High Availability)*
Proc	**Processes Page** - see *Processes*

Displaying aggregated server status

Use this procedure to display a corresponding status page:

1. Select **Status & Manage** > **Server**.
2. Click the status field for which you want to view more details.

The related status page appears with only the selected server in the status table.

Stopping the application

Use this procedure when the application on a server needs to be stopped. Stopping the application software places it in the Disabled Application state. Examples of when to stop the application include times when you need to delete a server, change a server role, or perform a system restore.

GUI sessions are not affected by the stop and restart application software actions. You may continue to use the GUI as these actions progress. You may use GUI sessions connected to servers with stopped application software. GUI provisioning may be affected if the server is the active NOAMP server. Stopping and starting application software may cause a switchover as well; you can observe changes in the status of those servers from the **Server Status** page.

CAUTION

Caution: Do not click **Stop** for an application until you have assessed the impact on the system. Stopping the application on a server can adversely affect processes on this server and/or other servers in the network element.

1. Select **Status & Manage** > **Server**.
2. Click to select the server you want to stop.

   To select multiple rows, press and hold **Ctrl** as you click to select specific rows.
3. Click **Stop**.

   A warning message appears:

   Are you sure you wish to stop application software on the following server(s)? <server name>
4. Click **OK** to continue.

Application processes are disabled on this server. Stopping the application or restarting running software influences the High Availability subsystem by raising an alarm. Stopping application software affects server processing in the following ways:

- Servers continue to emit alarms and collect measurements.
- NOAMP and SOAM servers continue to publish replicated data and accept GUI connections.

- SOAM and Message processing servers continue to subscribe to replicated data.
- NOAMP servers do not accept provisioning/configuration changes.
- MP servers do not maintain signaling connections nor process messages.

Restarting the application

If the **Application State** displays Disabled, **Restart** starts the software. If the **Application State** displays Enabled, **Restart** stops and then starts the software. Restarting the software places it in the enabled state.

A Restart can be used:

- To restart a newly created server, which has software in the disabled state.
- When a server is removed and re-added to topology and has software in the disabled state.

GUI sessions are not affected by the restart application software action. You may continue to use the GUI as these actions progress. You may use GUI sessions connected to servers with application software being restarted. GUI provisioning may be affected if the server is the active NOAMP server. Stopping and starting application software may cause a switchover as well; you can observe changes in the status of these servers from the **Server Status** page.

CAUTION

Caution: Do not click **Restart** for an application until you have assessed the impact on the system. Restarting the application on a server can adversely affect processes on this server and/or other servers in the network element.

Use this procedure to restart the application on a server:

1. Select **Status & Manage** > **Server**.

   The Server Status page appears.
2. Click to select the server you want to restart.

   Alternately, you can select multiple servers to restart. To select multiple rows, press and hold **Ctrl** as you click to select specific rows.
3. Click **Restart**

   A warning message appears:

   Are you sure you wish to restart application software on the following server(s)? <server name>
4. Click **OK** to continue.

Application processes are restarted on this server. Restarting running software influences the High Availability subsystem by raising an alarm. If the software is running when the Restart is selected, the stopping of the software affects server processing in the following ways:

- Servers continue to emit alarms and collect measurements.
- NOAMP and SOAM servers continue to publish replicated data and accept GUI connections.
- SOAM and Message processing servers continue to subscribe to replicated data.
- NOAMP servers do not accept provisioning/configuration changes.
- Message Processing servers do not maintain signaling connections nor process messages.

Rebooting a server

A server should not be rebooted until you have assessed the full impact on the system. This list describes what happens when servers of different roles are rebooted:

- **OAM Server controlling GUI session:** Reboot of OAM Servers ends all GUI sessions controlled by that server. Note that the reboot may reboot the server controlling your GUI session. After the reboot sequence completes, you can re-establish a GUI session with the rebooted server. You are presented with a login screen and need to re-authenticate to create a new session.
- **Active OAM Server:** Stopping and starting application software may cause a switchover. You have different capabilities on Active vs. Standby OAM servers, depending on the feature. For example, provisioning is only allowed from the Active NOAMP server.
- **Other Servers:** Rebooting Message Processing servers and Standby OAM servers without GUI sessions has no direct GUI impact. You can observe changes in the status of these servers. A BR tag was used here in the original source.

CAUTION

Caution: Do not click **Reboot** for a server until you have assessed the impact on the system. **Reboot** temporarily halts all services on the designated server; do not perform a Reboot unless other servers within the network element can take over the traffic load.

Use this procedure to reboot a server:

1. Select **Status & Manage** > **Server**.
2. Click to select the server you want to reboot.

   Alternately, you can select multiple servers to reboot. To select multiple rows, press and hold **Ctrl** as you click to select specific rows.
3. Click **Reboot**.

   A warning message appears:

   Are you sure you wish to reboot the following server(s)? <server name>
4. Click **OK** to continue.

The specified server is rebooted. Rebooting the server influences the High Availability subsystem. The rebooted server's mate no longer detects HA heartbeats and raises an alarm.

NTP Sync

Periodically a user has the need to sync or resync one or more servers to the preferred NTP source. This might be required for various reasons including a network change, a new NTP server has been added, or a disaster recovery of an existing NTP server has taken place. Capabilities differ depending on the application. For example, The DSR Network OAM presents a broader scope of eligible servers than the DSR System OAM but the functionality remains the same.

CAUTION

Caution: This operation should be planned. Critical processes are temporarily shutdown in order to complete the action. The user should understand the concepts of the High Availability (HA) subsystem related to **Max Allowed HA Role**. Reference *HA (High Availability)*.

Note: **NTP Sync** can only be performed on a server that currently reflects a **Max Allowed HA Role** of Standby, Spare, or Observer.

Use this procedure to perform an **NTP Sync** on one or more servers.

1. Select **Status and Manage** > **HA**.
2. Identify the target server(s) on which you want to perform the **NTP Sync** action. Confirm that all target servers reflect a **Max Allowed HA Role** of either Standby, Spare or Observer.
3. Select **Status and Manage** > **Server**.
4. Select one or more targets servers and click **NTP Sync**.

   A warning message appears:

   Are you sure you wish to force an NTP Sync on the following server(s)?
5. Click **OK** to continue.

The NTP sync action is invoked on the target server(s). A message is displayed at the top of the work area informing the user of the status of the operation.

Generating a server status report

Use this procedure to generate a server status report on one or more servers . This report differs from the server configuration report in that it presents server status information as defined in the server status elements table. Reference *Server status elements*.

1. Select **Status & Manage** > **Server**.
2. Select one or more servers.

   Note: If no servers are selected then all servers appear in the status report.
3. Click **Report**.
4. Click **Print** to print the report, or click **Save** to save a text file of the report to your local workstation.

HA (High Availability)

HA Status provides the status of the HA relationships for OAM and MP servers, which are configured to run as either active-standby server pairs or individual servers. The internal status fields are used to map to a Derived HA Status. The Derived HA Status is displayed as the HA Status.

The Availability state of a server is used by HA to determine when a switchover is necessary. Availability is ranked with a score. A lower score is better and means the server is in better health. The decision to switchover is based on this score. The switchover only occurs if a Standby server is deemed to be in better health (has a lower score) than an Active server. If the Standby's score is equal to or higher than the Active's score, then a switchover does not occur. In the HA Status screen, the server taking over shows its HA Status going to Active and HA Role going to Providing Service. The mate shows its unhealthier status.

Availability states are driven from conditions or events which have occurred on a server. As events and conditions change on a server, its Availability status can change. Depending on the set of conditions on an Active-Standby server pair, a switchover may occur.

HA status elements

The **HA** page displays detailed status of how HA is working in the entire network in tabular form. This table describes the details displayed for all servers:

Table 88: HA Status Elements

HA Status Element	Description
Hostname	The server's hostname.
OAM HA Role	The operational OAM HA role of the server: • Active: Server is running as the Active server. It is providing service and owns the VIP. • Standby: Server is running as the Standby server. It is ready to provide service in the event of a switch over. • Spare: Server is running as the Spare server. • Observer: Server is running as the Observer server. • OOS: Server is out of service for that role.
Application HA Role	The operational application HA role of the server: • Active: Server is running as the Active server. It is providing service and owns the VIP. • Standby: Server is running as the Standby server. It is ready to provide service in the event of a switch over. • Spare: Server is running as the Spare server. • Observer: Server is running as the Observer server. • OOS: Server is out of service for that role.
Max Allowed HA Role	The administrative maximum allowed HA role that the server is allowed to achieve. Defaults are: • NOAMP: Active • SOAM: Active • MP: Active • Query Server: Observer
Mate Hostname List	List of possible hostnames that can act as the server's mate.
Network Element	The network element that the server belongs to.
Server Role	The server's role (Query Server, or MP for Message Processor).
Active VIPs	An indication of all VIPs that are active on the server.

Viewing HA status data

Use this procedure to view HA status data:

Select **Status & Manage** > **HA**.

The **HA Status** page appears.

Modifying the HA Status

Use this procedure to modify the HA status:

1. Select **Status & Manage** > **HA**.
2. Click **Edit**.
3. Change the **Max Allowed HA Role** for any hostname on the list.

   Note: At least one NOAMP must remain active on the network.
4. Click **OK** to save the changes.

The modifications are written to the database. The change takes effect immediately.

Sorting HA status data

HA status data is not displayed in a particular default order. To sort the HA status data, click on any of the column headers in the HA status table to sort the table by that column. Clicking again on the same column header reverses the direction of the sort (ascending or descending). To return to the table's original ordering, click **Status & Manage** > **HA**.

Database

The **Database** page provides:

- The ability to disable and enable provisioning system-wide on the active NOAM and site-wide on the active SOAM.
- Database status information for each server in the network. The system tracks alarms associated with a database and displays this information on the **Database** page.
- Access to several database functions. These functions include: disabling and enabling provisioning; displaying a database status report; inhibiting and allowing replication; backing up and restoring database and/or provisioning information; comparing the current database version to a backup to ensure schema compatibility; initiate a manual audit and suspend an automated audit. With the exceptions of restore and replication, these functions affect a single OAM or MP server only.
- The status of database backups.
- The durability status.

Database status elements

The **Database** page displays status information and functions on a per server basis. This table describes the elements on the **Status & Manage Database** page.

Note: At the top of the Database Status and Manage screen is an **Info** display. Database maintenance operations, for example, automatic and manual backups, or restore messages, are listed in this information display. While not technically a status table element, this display provides important information and should be viewed periodically.

Table 89: Database Status Elements

Element	Description
Network Element	The name of the Network Element to which the server belongs.
Server	Name of the Server.
Role	The role the server plays in the system.
OAM Max HA Role	The observed maximum high availability role among all resources in policy 0 on the server: • Active: Server is running as the Active server. • Standby: Server is running as the Standby server. It is ready to provide service in the event of a switch over. • Spare: Server is running as the Spare server. • Observer: Server is running as the Observer server. • OOS: Server is out of service.
Application Max HA Role	The observed maximum HA role among all resources in all other policies on the server: • Active: Server is running as the Active server for application policies. • Standby: Server is running as the Standby server. It is ready to provide service in the event of a switch over. • Spare: Server is running as the Spare server. • Observer: Server is running as the Observer server. • OOS: Server is out of service.
Status	Alarm status for a server; status is reported for a server as the highest severity of all database alarms associated with that server. The status of the server affects the color of that server row: • Normal - No alarms related to DB status (no change in background color). • Minor - The server has raised a minor alarm that relates to DB status (yellow background). • Major - The server has raised a major alarm that relates to DB status (orange background). • Critical - The server has raised a critical alarm that relates to DB status (red background). • Unknown - Alarm collection is not possible or reports an error (red background).
DB Level	The database update level on a server. This value is incremented by certain types of database updates and allows the user to compare DB levels across different servers.
OAM Repl Status	OAM Replication status for a server as reported by COMCOL: • Unknown - no current status information. • Normal - all links are normal. • Degraded - some replication links are up, some are down. • Failed - all replication links to this server are down or failed.

Element	Description
	• Not Applicable - replication does not apply. • Not Configured - replication is not configured. • Auditing - all links are auditing or normal, zero links are down.
SIG Repl Status	Signaling Replication status for a server as reported by COMCOL: • Unknown - no current status information. • Normal - all links are normal. • Degraded - some replication links are up, some are down. • Failed - all replication links to this server are down or failed. • Not Applicable - replication does not apply. • Not Configured - replication is not configured. • Auditing - all links are auditing or normal, zero links are down.
Repl Status	Displays whether replication is inhibited for the server. The inhibiting of replication on servers occurs automatically during the Restore procedure.
Repl Audit Status	Displays whether replication auditing is in progress for the server.

Viewing database status

The **Database Status** page displays a table of all servers and their associated database status. To identify servers that require attention, information for each database is condensed into a single status, which is shown in the **Status** column. The database alarm status indicates the severity of the most severe database-related alarm on each server. This status affects the color of the background for the server status cell. For more details on the **Status** element and a description of the background colors, see the **Status** description in the table in the previous section, *Database status elements*.

Use the following procedure to view the database status for servers:

Select **Status & Manage** > **Database**.

Sorting database data

Database data is not displayed in a particular default order. To sort the database data, click on any of the column headers in the Database status table to sort the table by that column. Clicking again on the same column header reverses the direction of the sort (ascending or descending).

Generating the server database report

The Server Database Report provides detailed information about a selected server, such as:

- Name of the server on which the report is generated
- Any associated database alarms
- Any associated database maintenance in progress
- Current database disk and memory utilization
- Other service information of use to My Oracle Support personnel when diagnosing a problem

Use this procedure to generate a server database report:

1. Select **Status & Manage** > **Database**.
2. Click to select the server for which you want to generate a report.
3. Click **Report**.
4. Click **Print** to print the report.
5. Click **Save** to save the report to a file.

Inhibiting/Allowing replication of data

The **Database Status** page provides manual control for inhibiting and re-allowing database replication on servers.

Note: The inhibiting of replication on servers occurs automatically during the Restore procedure. For information on this process, see *Restoring data to the active NOAMP server*.

Use this procedure to inhibit replication on a server:

1. Select **Status & Manage** > **Database**.
2. Click to select the server for which you want to inhibit replication.
3. Click **Inhibit Replication**.

   A confirmation box displays the message, **Inhibit replication to server <servername>. Are you sure?**
4. Click **OK**.

Replication for the selected server is inhibited. The text on the button changes from **Inhibit Replication** to **Allow Replication** for the selected server, and **Inhibited** appears in the last column in the selected server's row. When you are ready to allow replication on this server again, click **Allow Replication**.

Backing up data

Backup allows you to capture and archive data configured and/or provisioned on a specific NOAMP or SOAM server. All files that are part of the backup are archived into a single file in the file management storage area. For information on file storage and file name format conventions, see *Files*.

A backup of configuration and/or provisioning data on the NOAMP or on an SOAM server can be initiated or terminated from the **Database Status** page. The status of a backup can viewed from the **Backup and Archive** page.

Note: You must be logged into the active server to backup data for that server. For example, to perform a backup of NOAMP configuration or provisioning data, you must be logged into the active NOAMP. To perform a backup of SOAM configuration data, you must be logged into the active SOAM. Data backup is handled solely by NOAMP servers in systems that do not support SOAMs.

Note: Depending on the application, the Provisioning button may not be functional. For example, on the active DSR NOAMP, the Provisioning button is presented but disabled. The active UDR NOAMP presents the button as functional and the user may toggle the selection as desired.

Note: Only Configuration data can be backed up on SOAM. The Provisioning button is not functional on SOAM and cannot be checked. Only the Configuration button is active.

Use this procedure to backup data for a server.

1. Select **Status & Manage** > **Database**.

2. Click **Disable Provisioning**, then click **OK**.

   Provisioning and configuration updates are disabled for all servers, and the **Disable Provisioning** button changes to **Enable Provisioning**.

   Note: On an NOAMP, this means provisioning and configuration are disabled system-wide. On an SOAM, configuration is disabled only on the SO level.

3. Click to select the Active server in the Network Element that contains the data you want to backup.
4. Click **Backup**.
5. Select the data to be backed up, either **Provisioning**, **Configuration**, or both.

   Note: Only Configuration data can be backed up on SOAM. The Provisioning button is not functional on SOAM and cannot be checked. Only the Configuration button is active.

6. Select the backup archive compression algorithm, either gzip, bzip2, or none.

   Note: When backing up a database above 300M for SDS provisioning, it is recommended that you do not use bzip2.

7. Enter a comment in the **Comment** field to identify the backup file.

   This information is stored as part of the backup file and is displayed before a restore of the file occurs.

8. Change the **Archive Filename**, if desired.
9. Click **OK**.

   The backup begins. When the backup begins, the Tasks box is displayed with the long running task which is managing the backup. You can follow the progress of the backup from the Tasks box. After refreshing the page, the status of the backup appears in the Information message box with a message similar to this:

   ```
   Backup on <server_name> status MAINT_IN_PROGRESS.
   ```

   The only action that can be taken for this server while a backup is in progress is **Report**. The backup is complete when the status message changes to:

   ```
   Backup on <server_name> status MAINT_CMD_SUCCESS. Success
   ```

10. Click **Enable Provisioning**, then click **OK**.

    Note: You do not have to wait until the backup is complete to re-enable provisioning and configuration updates.

    Provisioning and configuration updates are enabled for all servers, and the **Enable Provisioning** button changes to **Disable Provisioning**.

The backed up data is stored in a compressed file and copied to the file management storage area of the server that was backed up. Use the **Status & Manage** > **Files** option to access this file. To transfer the file off-site, use the procedure, *Uploading a file to an alternate location*.

Database Archive Compare elements

The **Database Archive Compare** page displays a database report for the selected server. The databases and topologies are compared and the results displayed. This table describes the elements of the **Database Archive Compare** page.

Table 90: Database Status Elements

Element	Description
SBR Database Compatibility	The compatibility status of the SBR databases being compared.
Archive Contents	The type of data that has been archived.
Database Compatibility	The compatibility status of the databases being compared.
Node Type Compatibility	The compatibility status of the relevant nodes.
Topology Compatibility	The compatibility status of the topology.
User Compatibility	The compatibility of the user and authentication data.
Contents	The contents of the archived database.
Table Instance Counts	Compares the number of database tables in the current database versus the database archive.

Comparing a backup file to an active database

The **Compare** page allows you to select a backup file in the file management storage area to compare and authenticate to the current database on the selected server. You must have at least one backup file in order to do a comparison.

Use this procedure to compare a backed up file with an active database:

1. Select **Status & Manage** > **Database**.
2. Click to select the server whose data you want to compare to a backup.
3. Click **Compare**.
4. Click an option to select the backup to compare.
5. Click **OK**.

   The **Database Archive Compare** page appears displaying a database report for the selected server. The databases and topologies are compared and the results displayed.
6. Click **Print** to print the report.
7. Click **Save** to save the report to a file.

Restoring data to the active NOAMP server

Caution: This information is provided for informational purposes only and does not grant permission to the customer to enact these procedures. The database restore operation is a service affecting procedure and careful consideration needs to be taken before executing database restore. All restore procedures shall be performed by Oracle

Communications or its authorized representatives using the product specific Disaster Recovery guide.

Restore allows you to select and re-apply previously stored data across all components. Restorations can only be performed from the active NOAMP server.

Note: Restoration to any server other than the active NOAMP prevents proper provisioning and replication control within the network.

Restoration causes HA activity to switch from the targeted NOAMP server at the start to the mate of the target server, and back again on completion.

During restoration, the target server's database is stopped so that the database tables may be replaced with those contained in the Backup and Archive file. No alarms, events, measurements, or other stateful or collected data is archived by the target server for that time period. The target server begins recollecting that data once restoration is complete.

Restoration automatically enacts replication control on all application servers. This isolates the changes to the server being restored and allows the remainder of the network to operate without impact. Restoration automatically disables provisioning using the provisioning control subsystem. This stabilizes the database contents for the duration of the restoration procedure.

Several procedures are used during the restore process. The order in which they are performed varies depending on the number of servers and the setup of your system. Before data restoration can occur, the archived file being restored must be transferred to the file storage area. For more information, see *Uploading a local file*.

The documentation that came with your application provides a detailed list of all steps to perform during a restore, as well as the order in which to perform them. However, this information is provided for informational purposes only and does not grant permission to the customer to enact these procedures. Contact My Oracle Support for more information about restoring data.

Confirming a restore procedure on the active NOAMP server

Caution: This information is provided for informational purposes only and does not grant permission to the customer to enact these procedures. The database restore operation is a service affecting procedure and careful consideration needs to be taken before executing database restore. All restore procedures shall be performed by Oracle Communications or its authorized representatives using the product specific Disaster Recovery guide.

After the restore procedure is initiated, the **Database Restore Confirm** page appears. This page contains information about the compatibility status of the server and the selected archive.

The documentation that came with your application provides a detailed list of all steps to perform during a restore, as well as the order in which to perform them. However, this information is provided for informational purposes only and does not grant permission to the customer to enact these procedures. Contact My Oracle Support for more information.

Replicating restored data to an SOAM server

When data is restored to the NOAMP, the data must be replicated to one SOAM server in each signaling network element, if the system supports SOAMs.

CAUTION

Caution: This information is provided for informational purposes only and does not grant permission to the customer to enact these procedures. All restore procedures shall be performed by Oracle Communications or its authorized representatives.

This procedure describes the process used to replicate restored data to an SOAM server:

1. Select **Status & Manage** > **Database**.
2. Locate all standby SOAM servers in the server table.
3. Click **Allow Replication** for each of these servers.

   Allow Replication displays for servers that are currently inhibited from receiving replicated database updates. This action enables replication for the selected servers. (For servers currently allowed to receive replicated database updates, the word **Inhibit Replication** displays here instead).
4. Select **Status and Manage** > **Replication**.
5. Verify that Auto Refresh is turned on.

   When the replication audit starts for a specific server, the Replication Status for that server displays **Not Replicating**, and Replication Channel Status displays **Audit**.
6. When the replication audit is complete, Replication Status returns to **Replicating** and Replication Channel Status returns to **Active**.
7. Select **Status & Manage** > **HA**.
8. Switch over the high availability state of the standby SOAM servers.

   For more information about setting the high availability state, see *HA (High Availability)*.

Replication is restored, and standby SOAM servers are updated with data from the restored backup. See *Replicating restored data to an MP server*, for information about how to manually turn replication back on for MP servers.

Replicating restored data to an MP server

When data is restored to SOAM servers, the data must be replicated to each MP server.

CAUTION

Caution: This information is provided for informational purposes only and does not grant permission to the customer to enact these procedures. All restore procedures shall be performed by Oracle Communications or its authorized representatives.

Use this procedure to replicate restored data to an MP server:

1. Select **Status & Manage** > **Database**.
2. Locate all MP servers.
3. Click **Allow Replication** for each of these servers.

   Replication resumes for each of these servers.
4. Select **Status & Manage** > **Replication**.
5. Verify that Auto Refresh is turned on.
6. When the replication audit starts for a specific server, the Replication Status for that server displays **Not Replicating**, and Replication Channel Status displays **Audit**.
7. When the replication audit is complete, Replication Status returns to **Replicating** and Replication Channel Status returns to **Active**.

8. Select **Status & Manage** > **HA**.
9. Switch over the high availability state of the standby MP servers.
   For more information about setting the high availability state, see *HA (High Availability)*.

Replication is restored on the selected servers, and the servers are updated with data from the restored backup.

Enabling and disabling provisioning on the active NOAMP server

Use this procedure to enable or disable provisioning updates on the active NOAMP server:

1. Select **Status & Manage** > **Database**.
2. Click **Enable Provisioning**.
   Provisioning and configuration updates are enabled on all active NOAMP servers in the system. The **Enable Provisioning** button switches to **Disable Provisioning**.
3. To disable provisioning on a NOAMP GUI, click **Disable Provisioning**.

Enabling and disabling provisioning on the active SOAM server

Use this procedure to enable or disable provisioning updates on the active SOAM server:

1. Select **Status & Manage** > **Database**.
2. Click **Enable Site Provisioning**.
   Provisioning and configuration updates are enabled on all active SOAMs at the SO level. The **Enable Site Provisioning** button switches to **Disable Site Provisioning**.
3. To disable provisioning on a SOAM GUI, click **Disable Site Provisioning**.

KPIs

The **Status & Manage** > **KPIs** page displays KPIs for the entire system. KPIs for the server and its applications are displayed on separate tabs. The application KPIs displayed may vary according to whether you are logged in to an NOAM server or an SOAM server.

KPIs server elements

Table 91: KPIs Server Elements

KPIs Status Element	Description
Name	The KPI name.
Max	Maximum value of the KPI name within the selected scope.
Min	Minimum value of the KPI name within the selected scope.
Median	Median value of the KPI name within the selected scope.

KPIs Status Element	Description
Average	Average value of the KPI name within the selected scope.
Sum	Summary of all values of the KPI name within the selected scope.
Description	Description of the KPI name.

Viewing KPIs

Use this procedure to view KPI data.

1. Select **Status & Manage** > **KPIs**.

   The **Status & Manage > KPIs** page appears with the **Server** tab displayed. For details about the KPIs displayed on this page, see the application documentation.
2. Click the **KPI Filter** button and specify filter options using the drop-down menus to see KPI data relevant to an application.
3. Click to select an application tab to see KPI data relevant to the application.**Go** to filter on the selection.

   Note: The application KPIs displayed may vary according to whether you are logged in to an NOAM server or an SOAM server. Collection of KPI data is handled solely by NOAM servers in systems that do not support SOAMs.

KPIs data export elements

This table describes the elements on the **KPIs > Export** page.

Table 92: Schedule KPI Data Export Elements

Element	Description	Data Input Notes
Export Frequency	Frequency at which the export occurs	Format: Radio button Range: Fifteen Minutes, Hourly, Once, Weekly, or Daily Default: Once
Task Name	Name of the scheduled task	Format: Textbox Range: Maximum length is 40 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Task Name must begin and end with an alphanumeric character.
Description	Description of the scheduled task	Format: Textbox Range: Maximum length is 255 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Description must begin with an alphanumeric character.

Element	Description	Data Input Notes
Minute	If hourly or fifteen minutes is selected for Upload Frequency, this is the minute of each hour when the data will be written to the export directory.	Format: Scrolling list Range: 0 to 59 Default: 0
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM
Day of Week	Day of week on which the export occurs	Format: Radio button Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday Default: Sunday

Exporting KPIs

You can schedule periodic exports of security log data from the **KPIs** page. KPI data can be exported immediately, or you can schedule exports to occur daily or weekly. If filtering has been applied in the **KPIs** page, only filtered data is exported.

During data export, the system automatically creates a CSV file of the filtered data. The file will be available in the file management area until you manually delete it, or until the file is transfered to an alternate location using the Export Server feature. For more information about using **Export Server**, see *Data Export*.

Use this procedure to schedule a data export task.

1. Select **Status & Manage** > **KPIs**.

   The **KPIs** page appears.
2. If necessary, specify filter criteria and click **Go**.
   The KPIs are displayed according to the specified criteria.
3. Click **Export**.
   The **KPIs [Export]** page appears.
4. Enter the **Task Name**.
   For more information about **Task Name**, or any field on this page, see *KPIs data export elements*.
5. Select the **Export Frequency**.
6. If you selected Hourly, specify the **Minutes**.
7. Select the **Time of Day**.

   Note: Time of Day is not an option for frequencies other than Daily or Weekly.
8. Select the **Day of Week**.

   Note: Day of Week is not an option for frequencies other Weekly.
9. Click **OK** to initiate the KPI export task.

From the **Status & Manage** > **Files** page, you can view a list of files available for download, including the file you exported during this procedure. For more information, see *Viewing the file list*.

Scheduled tasks can be viewed, edited, and deleted, and reports of scheduled tasks can be generated from **Status & Manage** > **Tasks**. For more information see:

- *Viewing scheduled tasks*
- *Editing a scheduled task*
- *Deleting a scheduled task*
- *Generating a scheduled task report*

Graphing KPIs

The graphing function allows for an easy visual display of KPI information over time by network and server. The graph displays below the KPI grid listing, with the key to the right of the graph.

Use this procedure to graph KPIs:

1. Select **Status & Manage** > **KPIs**.

   The **KPIs** page appears.
2. If necessary, specify filter criteria using the **Filter** pull down menu and click **Go**.
   The KPIs are displayed according to the specified criteria.
3. Select either the **Entire Network** tab or the desired server tab, then select the desired KPI group from the listing below the tab.
   The KPIs for the selected group display.
4. Select one or more KPIs.

   Note: Press **Ctrl** to individually select KPIs. Press **Shift** to select a range of KPIs.
5. Click **Graph**.
   The graph displays below the grid.
6. To adjust the graph viewing area, click and hold the slider above the graph while adjusting the proportions with the mouse.
7. To remove the graphing, select all the KPIs currently being graphed and click **Graph**. The graph display will disappear.

   Note: If only some KPIs being graphed are selected for removal, or if different KPIs are selected, the new selection of KPIs will be graphed.

Processes

The **Processes** page displays process status and other process information on a per-process basis for all servers in the system. Processes are controlled at the server level using the Stop, Restart, and Reboot options on the Servers page. See *Server* for more on Stop, Restart, and Reboot.

Process status elements

This table describes elements on the **Status & Manage Processes** page.

Table 93: Process Status Elements

Process Status Element	Description
Hostname	The hostname of the server.
Process Name	Name of the process, based on a unique identifying process tag within the application. Multiple processes on a server with the same name are appended with an instance number (#), for example, idbsvc(0) and idbsvc(1).
Start Time	Date and time the process was last (re)started.
Status	Status of the process. Possible values are: • **Up**: Process is up and running. Processes which are started successfully and reach a steady-state have a status of Up. • **Done**: The process is complete. • **Kill**: Process is being stopped. This is the normal state for a process to enter while being stopped. If a process is failing to shutdown, it remains in the Kill state for an extended amount of time. • **Pend**: Process execution is pending, waiting to be (re)started. Processes that have exited abnormally from the Up state shall fall into the Pend state. Processes that cannot start successfully shall remain in the Pend state. • **Unknown**: A failure is preventing the reporting or collection of the process status.
# Starts	Number of times the process started. All counts are 1 when a server boots up. The count increments to 2 if the process restarts and increments with each process restart. The count resets to 1 if the server is rebooted.
CPU Utilization	An estimate of recent CPU percentage used per process on the server.
Memory Used (%)	Percent of total memory used per process on the server.
Memory Used (Total) (K)	Total memory consumption per process including text, data, library, shared memory, etc., in Kilobytes.
Heap Memory Used (K)	Size of the heap used per process in Kilobytes.

Viewing Processes

Use this procedure to view all processes running on application servers:

Select **Status & Manage** > **Processes**.

The **Processes status** page appears. For more information about the fields displayed on the **Status & Manage** > **Processes** page, see *Process status elements*.

Tasks

The **Tasks** pages display the active, long running tasks and scheduled tasks on a selected server. The **Active Tasks** page provides information such as status, start time, progress, and results for long running tasks, while the **Scheduled Task**s page provides a location to view, edit, and delete tasks that are scheduled to occur.

Active Tasks

The **Active Tasks** page displays the long running tasks on a selected server. The **Active Tasks** page provides information such as status, start time, progress, and results, all of which can be generated into a report. Additionally, you can pause, restart, or delete tasks from this page.

Viewing active tasks

Use this procedure to view the active tasks.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
   The **Active Tasks** page appears.
2. Select a server.

   Note: Hovering the mouse over any tab displays the name of the server.

   All active tasks on the selected server are displayed.

Active Tasks elements

The **Active Tasks** page displays information in a tabular format where each tab represents a unique server. By default, the current server's tab is selected when the page is loaded. This table describes elements on the **Active Tasks** page.

Table 94: Active Tasks Elements

Active Tasks Element	Description
ID	Task ID
Name	Task name
Status	Current status of the task. Status values include: running, paused, completed, exception, and trapped.
Start Time	Time and date when the task was started
Update Time	Time and date the task's status was last updated
Result	Integer return code of the task. Values other than 0 (zero) indicate abnormal termination of the task. Each value has a task-specific meaning.
Result Details	Details about the result of the task

Active Tasks Element	Description
Progress	Current progress of the task

Deleting a task

Use this procedure to delete one or more tasks.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the cursor over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select one or more tasks.

   Note: To delete a single task or multiple tasks, the status of each task selected must be one of the following: completed, exception, or trapped.

   Note: You can select multiple rows to delete at one time. To select multiple rows, press and hold Ctrl as you click to select specific rows.
4. Click **Delete**.
5. Click **OK** to delete the selected task(s).

Deleting all completed tasks

Use this procedure to delete all completed tasks.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the cursor over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Click **Delete all Completed**.
4. Click **OK** to delete all completed tasks.

Cancelling a running or paused task

Use this procedure to cancel a task that is running or paused.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the cursor over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select a task.
4. Click **Cancel**.
5. Click **OK** to cancel the selected task.

Pausing a task

Use this procedure to pause a task.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the mouse over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select a task.

   Note: A task may be paused only if the status of the task is running.

4. Click **Pause**.
   A confirmation box appears.
5. Click **OK** to pause the selected task.
   For information about restarting a paused task, see *Restarting a task*.

Restarting a task

Use this procedure to restart a task.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the mouse over any tab displays the name of the server.

   All active tasks on the selected server are displayed.

3. Select a paused task.

   Note: A task may be restarted only if the status of the task is paused.

4. Click **Restart**.
   A confirmation box appears.
5. Click **OK** to restart the selected task.
   The selected task is restarted.

Active Tasks report elements

The **Active Tasks [Report]** page displays report data for selected tasks. This table describes elements on the **Active Tasks [Report]** page.

Table 95: Active Tasks Report Elements

Active Tasks Report Element	Description
Task ID	Task ID
Display Name	Task name
Task State	Current status of the task. Status values include: running, paused, completed, exception, and trapped.

Active Tasks Report Element	Description
Admin State	Confirms task status
Start Time	Time and date when the task was started
Last Update Time	Time and date the task's status was last updated
Elapsed Time	Time to complete the task
Result	Integer return code of the task. Values other than 0 (zero) indicate abnormal termination of the task. Each value has a task-specific meaning.
Result Details	Details about the result of the task

Generating an active task report

Use this procedure to generate an active task report.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the mouse over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select one or more tasks.

   Note: If no tasks are selected, all tasks matching the current filter criteria is included in the report.
4. Click **Report**.
5. Click **Print** to print the report.
6. Click **Save** to save the report.

Scheduled Tasks

The periodic export of certain data can be scheduled through the GUI. The **Scheduled Tasks** page provides you with a location to view, edit, delete, and generate reports of these scheduled tasks. For more information about the types of data that can be exported, see:

- *Exporting active alarms*
- *Exporting alarm and event history*
- *Exporting security log files*
- *Exporting KPIs*
- *Exporting measurements reports*

Viewing scheduled tasks

Use this procedure to view the scheduled tasks.

Select **Status & Manage** > **Tasks** > **Scheduled Tasks**.

The **Scheduled Tasks** page appears, and all scheduled tasks are displayed.

Scheduled Tasks elements

The **Scheduled Tasks** page displays information in a tabular format where each tab represents a unique server. By default, the current server's tab is selected when the page is loaded. This table describes elements on the **Scheduled Tasks** page.

Table 96: Scheduled Tasks Elements

Scheduled Tasks Element	Description
Task Name	Name given at the time of task creation
Description	Description of the task
Time of Day	The hour and minute the task is scheduled to run
Day-of-Week	Day of the week the task is scheduled to run
Network Elem	The Network Element associated with the task

Editing a scheduled task

Use this procedure to edit a scheduled task.

1. Select **Status & Manage** > **Tasks** > **Scheduled Tasks**.
   All scheduled tasks are displayed on the **Scheduled Tasks** page.
2. Select a task.
3. Click **Edit**.
   The **Data Export** page for the selected task appears.
4. Edit the available fields as necessary.
   See *Scheduled Tasks elements* for details about the fields that appear on this page.
5. Click **OK** or **Apply** to submit the changes and return to the **Scheduled Tasks** page.

Deleting a scheduled task

Use this procedure to delete one or more scheduled tasks.

1. Select **Status & Manage** > **Tasks** > **Scheduled Tasks**.
   All scheduled tasks are displayed on the **Scheduled Tasks** page.
2. Select one or more tasks.
3. Click **Delete**.
4. Click **OK** to delete the selected task(s).

Generating a scheduled task report

Use this procedure to generate a scheduled task report.

1. Select **Status & Manage** > **Tasks** > **Scheduled Tasks**.
   All scheduled tasks are displayed on the **Scheduled Tasks** page.

2. Select one or more tasks.

   Note: If no tasks are selected, all tasks matching the current filter criteria is included in the report.

3. Click **Report**.
4. Click **Print** to print the report.
5. Click **Save** to save the report.

Files

The **Files** page provides access to the file management storage area of all servers configured on the system. This area is used to store and manage files generated by OAM server operations such as backup data and measurement processes. In addition to viewing and deleting files, you can also use the **Files** page to download existing files to an alternate location and upload new files.

File status elements

The **Files** page displays information in a tabular format where each tab represents a unique server. By default, the current server's tab is selected when the page is loaded. This table describes the elements on the **Files** page.

Table 97: File Elements

Element	Description
File Name	Name of the file.
Size	File size. Sizes are shown in one of the following units: PB (petabyte), TB (terabyte), GB (gigabyte), MB (megabyte), KB (kilobyte), or B (byte).
Type	File extension type.
Timestamp	Time and date of file creation on the server.

File name formats APDE

This table describes the file content types and file name formats for files written to the file management storage area using the Automated Performance Data Export (APDE) framework. APDE defines a common process by which various performance indicators are exported to the file management storage area. These are Alarms, Events, KPIs, Measurements, and Security Logs.

Note: This section describes the system generated file names only.

In general, APDE generates files with a file name format of:

`<directory path>/<name><suffix><ext>`

Using an example of the type **Events** a file name might look like:

`export/myserver/Events/Events_20159030-112016-EDT_13.csv.gz`.

In this example the **<directory path>** includes `export/<hostname>/<export type>/`. The **<name>** includes `<export type>_<date-time-tz>_<task id>`. The **<suffix>** is `csv` and the **<ext>** is `gz`.

There are five **export type** categories differentiating the directory paths. We used **Events** in the example but the full list includes:

- `Alarms`
- `Events`
- `KPI`
- `Seculog`
- `Measurements`

Note: The measurements export type is only under the **Measurements** export type directory. The supported types vary according to the measurements offered by the application.

Following the export type in the **<directory path>** comes the **<name>**. With the exception of measurement export file names, the first part of the **<name>** typically begins with the **export type**. Names vary per export type but are similar to:

- `Alarms_<date-time-tz>_<task id>`
- `Events_<date-time-tz>_<task id>`
- `KPI_<date-time-tz>_<task id>`
- `Seculog_<date-time-tz>_<task id>`
- `<Measurements>` have varying name formats which include (but not limited to):
  - `MeasSimple_<date-time-tz>_<task id>`
  - `MeasSimple_<date-time-tz>_<measurement group>_<task id>`
  - `MeasArrayed_<date-time-tz>_<task id>`
  - `MeasArrayed_<date-time-tz>_<measurement group>_<task id>`
  - `<type name>_<date-time-tz>_<task id>`
  - `<type name>_<date-time-tz>_<measurement group>_<task id>`

Note: Task ID uniquely identifies an individual export task and can be correlated to an active task under **Status & Manage** > **Tasks** > **Active Tasks**.

By default the `<suffix>` is **csv** (comma-separated value).

The file `<ext>` dictates the compression used and is user defined. The default is gzip. See *Data Export* for details on choosing file compression.

Table 98: File Name Formats Exports

File Content Type	File Name Common Examples
Exports (APDE)	
Alarms & Events	A common example of an events file is: **export/<hostname>/Events/Events_<date-time-tz>_<task id>.csv.gz** A common example of an alarms file is: **export/<hostname>/Alarms/Alarms_<date-time-tz>_<task id>.csv.gz**

File Content Type	File Name Common Examples
	Each of these types are comma-separated value files (csv) compressed using gzip (gz).
Security Logs	A common example of a security log file is: **export/<hostname>/Seculog/Seculog_<date_time_tz>_<task id>.csv.gz** Each of these types are comma-separated value files (csv) compressed using gzip (gz).
KPIs	A common example of a KPI file is: **export/<hostname>/KPI/KPI_<date-time-tz>_<task id>.csv.gz** Each of these types are comma-separated value files (csv) compressed using gzip (gz).
Measurements	Many variations of Measurements files exist. Additionally, the user has the ability to optionally add the measurement group name to the file. Some common examples without the measurement group added: **export/<hostname>/Measurements/OAM.ALARM/ MeasSimple_<date-time-tz>_<task id>.csv.gz** **export/<hostname>/Measurements/OAM.SYSTEM/ MeasSimple_<date-time-tz>_<task id>.csv.gz** **export/<hostname>/Measurements/OAM.SYSTEM/ MeasArrayed_<date-time-tz>_<task id>.csv.gz** Some common examples with the measurement group added: **export/<hostname>/Measurements/OAM.ALARM/ MeasSimple_<date-time-tz>_<measurement group>_<task id>.csv.gz** **export/<hostname>/Measurements/OAM.SYSTEM/ MeasSimple_<date-time-tz>_<measurement group>_<task id>.csv.gz** **export/<hostname>/Measurements/OAM.SYSTEM/ MeasArrayed_<date-time-tz>_<measurement group>_<task id>.csv.gz** Each of these types are comma-separated value files (csv) compressed using gzip (gz).

Note: It is recommended that policies be developed to prevent overuse of the storage area. These might include a procedure to delete files after transferring them to an alternate location using the data export feature. See *Data Export* for details of the feature.

File name formats

This table describes the file content types and file name formats for files written to the file management storage area by processes not using the Automated Performance Data Export (APDE) framework for exporting files. For exports using APDE see *File name formats APDE* for details of those file names.

Note: Files appearing in the storage area are put there by various automated and manual processes. In some cases the user has the ability to modify the system generated file name. This section describes the system generated file names only.

The file types addressed in this section include:

- **Backup** (Upgrade). This differs from the database backup and is a manual process.
- **Backup** (Database). This differs from the upgrade backup and can be manually or automatically generated.
- **Checkup** (Health Check). These are manually generated files.
- **ISO**. Manually uploaded and system managed.
- **Logs**. These are manually generated files.
- **Servers** (Configuration). These are manually generated files.

The following variables are commonly used in file naming:

- **<server name>** or **<hostname>** is the server hostname from which the file is generated.
- **<checkup type>** is the upgrade health check type. These are EarlyUpgrade, PreUpgrade, or PostUpgrade.
- **<checkup scope>** specifies whether the health check was run on a server group or network element basis.
- **<application name>** is the name of the application.
- **<group name>** is the type of data stored in the backup file.
- **<node type>** specifies whether the backup was generated on an NOAMP or SOAM.
- **<date_time_tz>** is the date, time and time zone that a file was created. This format can vary from file to file. Some may use hyphens while others use underscores. Some files may not include the time zone. The data and time format is generally YYYYMMDD_HHMMSS.
- **<task id>** Task ID uniquely identifies an individual export task and can be correlated to an active task under **Status & Manage** > **Tasks**.
- **(AUTO | MAN)** indicates whether the backup was automatically or manually generated.

The various file extensions used are:

- **bz2** is a compressed archive file created by bzip2. This type of file must be uncompressed to access the content inside.
- **gz** is a compressed archive file created by gzip. This type of file must be uncompressed to access the content inside.
- **log** is a flat file type that can be read by a text reader.
- **sh** is a self-extracting archive commonly used in linux systems for scripting.
- **tar** is an archive container and must be unpacked to access the content inside.
- **txt** is a flat file type that can be read by a text reader.

Note: The file types listed here are among the most commonly seen in the file management storage area. The list, however, is not exhaustive and other file types may appear in the storage area.

Table 99: File Name Formats

File Content Type	File Name and Description
Backup (Upgrade)	**Backup.<application>.<hostname>.FullRunEnv.<group name>.<date_time>.UPG.tar.bz2**

File Content Type	File Name and Description
	Backup.<application>.<hostname>.FullDBParts.<group name>.<date_time>.UPG.tar.bz2 **Note:** In this case the upgrade backup created two files differentiated by run environment and database. Both are tar files separately compressed using bzip2.
Backup (Database)	**backup/Backup.<application>.<hostname>.ProvisioningAndConfiguration.<group name>.<date_time>.(AUTO | MAN).tar.bz2** **Note:** A database backup can generate files using a default or custom file name. Additionally, the user can choose compression or no compression. Available compression choices are bz2 or gz. Files generated using no compression are simple tar files. In this type of backup the user has the choice of Provisioning data, Configuration data, or both
Checkup (Upgrade Health Check)	**<checkup type>_HealthCheck_<checkup scope>_<date_time>.txt** A checkup generates a simple text file that can be viewed or downloaded.
ISO File Image	**<name>.iso** **Note:** ISO images that have been uploaded but not deployed present a different file name than ISO images that have been uploaded and deployed. For example, an uploaded DSR ISO image has a filename that starts with iso whereas a deployed DSR ISO image has a filename that starts with DSR.
Logs	**ugwrap.log** **upgrade.log** **Note:** Upgrade or system logs are different than security logs. Seculogs use the APDE framework to export security logs to the file management storage area.
Servers (Configuration)	**TKLCConfigData.<hostname>.sh** **Note:** Servers configuration data generally starts with the term TKLCConfigData. These are shell files.

Note: It is recommended that policies be developed to prevent overuse of the storage area. These might include a procedure to delete files after transferring them to an alternate location using the data export feature. See *Data Export* for details of the feature.

Viewing the file list

Use this procedure to view the list of files located in the file management storage area of a server. The amount of storage space currently in use can also be viewed on the **Files** page.

1. From the Main menu, select **Status & Manage** > **Files**.
2. Select a server.
   All files stored on the selected server are displayed.

Viewing a file

Use this procedure to view, print, or save the contents of a file in the file management storage area.

1. Select **Status & Manage** > **Files**.
2. Select a server.
   All files stored on the selected server are displayed.
3. Select the file you want to view.

   Note: The **View** button is disabled when the contents of the file cannot be viewed from the GUI. For example, if a tar file is selected, the **View** button is disabled, because the contents of tar files cannot be viewed from the GUI.
4. Click **View**.
5. Click **Print** to print the file contents, or click **Save** to save the file.

Uploading a file to an alternate location

Use this procedure to move a file from the file management storage area to an alternate location.

1. Select **Status & Manage** > **Files**.
2. Select a server.
   All files stored on the selected server are displayed.
3. Click **Download**.
   Your browser's file download window appears.
4. Click **Save**.

   You browser's **Save As** window appears.
5. Navigate to the drive and folder where you want to save the file.
6. Click **Save**.

Uploading a local file

This procedure allows you to transfer a file from your local computer to the file management storage area of any server in the topology. A file up to 2 GB in size can be uploaded to the file management storage area.

Note: This product currently only supports file uploads and transfers for files less than 2 GB in size. To upload or transfer files greater than 2 GB in size, contact My Oracle Support for assistance.

Use this procedure when you want to transfer a local file to the file management storage area:

1. Select **Status & Manage** > **Files**.
2. Select a server.
   All files stored on the selected server are displayed.
3. Click **Upload**.
   A dialog box appears.
4. Click **Browse** to select the file to upload.

   The **Choose File** window appears allowing you to select a file to upload.

5. Select the file and click **Open**.

   The selected file and its path display in the file upload field.

   Note: Before proceeding, verify the selected file is uniquely named to avoid unintentionally overwriting another file.

6. Click **Upload**.

   A progress bar shows the status of the upload. When the upload is complete, an **Upload Complete** message appears.

   Note: Do not close the **Status & Manage Files** page during the upload. If you attempt to navigate away from the **Status & Manage Files** page during the upload, a dialog appears to confirm the action. If the page is closed before upload completes, the transfer of data is stopped.

   The file is now stored in the selected server's file management storage area.

Deleting files from the file management storage area

If a Minor or Major Alarm is raised indicating either a minimum of 80% or 90% of file management space is used, old backup files can be deleted to clear space on that server.

Use this procedure remove one or more files from the file management storage area.

1. Select **Status & Manage** > **Files**.
2. Select a server.
   All files stored on the selected server are displayed.
3. Select the file you want to delete.
4. Click **Delete**.

   A **deletion confirmation** window appears.
5. Click **OK**.

   The file is deleted and space is cleared on the server.
6. Repeat this procedure for each file to be removed.

The deleted files are cleared from the server and space becomes available in the file management storage area.

Deploying an ISO file

Use this procedure deploy an ISO file:

1. Select **Status & Manage** > **Files**.
2. Select the ISO file.
3. Select **Deploy ISO**.
   The ISO deploys to the server and is made available for upgrade on the server and all subtending servers. You can view the current deployment status using the **Tasks** pulldown at the top left of the screen.

Undeploying an ISO file

Use this procedure to undeploy an ISO file:

1. Select **Status & Manage** > **Files**.
2. Highlight the ISO to be undeployed.
3. Click **Undeploy ISO**.
   A confirmation message displays.
4. Click on the confirmation message.
   The ISO is recalled and is unavailable for upgrade.

Validating an ISO file

Use this procedure to validate an ISO file:

1. Select **Status & Manage** > **Files**.
2. Highlight the ISO to be validated.
3. Click **Validate ISO**.
   The ISO is validated. If an ISO image fails validation, it is renamed. An invalid ISO image cannot be deployed.

Chapter 8

Measurements

Topics:

This section provides an overview of the options on the **Measurements** page. All components of the system measure the amount and type of messages sent and received. Measurement data collected from all components of the system can be used for multiple purposes, including discerning traffic patterns and user behavior, traffic modeling, size traffic sensitive resources, and troubleshooting. This section provides an overview of measurements, describes how to generate and export a measurements report, and provides a list of register types.

Measurements

The measurements framework allows applications to define, update, and produce reports for various measurements.

- Measurements are ordinary counters that count occurrences of different events within the system, for example, the number of messages received. Measurement counters are also called pegs. Additional measurement types provided by the Platform framework are not used in this release.
- Applications simply peg (increment) measurements upon the occurrence of the event that needs to be measured.
- Measurements are collected and merged at the SOAM and NOAM servers as appropriate.
- The GUI allows reports to be generated from measurements.

Measurements that are being pegged locally are collected from shared memory and stored in a disk-backed database table every 5 minutes on all servers in the network. Measurements are collected every 5 minutes on a 5 minute boundary, i.e. at HH:00, HH:05, HH:10, HH:15, and so on. The collection frequency is set to 5 minutes to minimize the loss of measurement data in case of a server failure, and also to minimize the impact of measurements collection on system performance.

All servers in the network (NOAM, SOAM, and MP servers) store a minimum of 8 hours of local measurements data. More than 5 minutes of local measurements data is retained on each server to minimize loss of measurements data in case of a network connection failure to the server merging measurements.

Measurements data older than the required retention period are deleted by the measurements framework.

Measurements are reported in groups. A measurements report group is a collection of measurement IDs. Each measurement report contains one measurement group. A measurement can be assigned to one or more existing or new measurement groups so that it is included in a measurement report. Assigning a measurement ID to a report group ensures that when you select a report group the same set of measurements is always included in the measurements report.

Note: Measurements from a server may be missing in a report if the server is down; the server is in overload; something in the Platform merging framework is not working; or the report is generated before data is available from the last collection period (there is a 25 to 30 second lag time in availability).

Measurement elements

This table describes the elements on the **Measurements** > **Report** page.

Table 100: Measurements Elements

Element	Description	Data Input Notes
Scope	Network Elements, Server Groups, Resource Domains, Places and Place Associations for	Format: Pulldown list Range: Network Elements in the topology; Server Groups in the topology; Resource Domains in

Element	Description	Data Input Notes
	which the measurements report can be run. **Note:** Measurements for SOAM network elements are not available in systems that do not support SOAMs.	the topology; Places in the topology; Place Associations in the topology **Note:** If no selection is made, the default scope is Entire Network. Default: Entire Network
Report	A selection of reports	Format: Pulldown list Range: Varies depending on application Default: Group
Column Filter	The characteristics for filtering the column display	Format: Pulldown list Range: Sub-measurement Sub-measurement Ranges: • Like: A pattern-matching distinction for sub-measurement name, for example, 123* matches any sub-measurement that begins with 123. • In: A list-matching distinction for sub-measurement ID, for example, 3,4,6-10 matches only sub-measurements 3, 4, and 6 through 10. Default: None
Time Range	The interval of time for which the data is being reported, beginning or ending on a specified date.	Format: Pulldown list Range: Days, Hours, Minutes, Seconds Interval Reference Point: Ending, Beginning Default: Days

Generating a measurements report

Use this procedure to generate and view a measurements report.

1. Select **Measurements** > **Report**.
2. Select the **Scope**.

   For details about this field, or any field on the **Measurements** > **Report** page, see *Measurement elements*.
3. Select the **Report**.
4. Select the **Interval**.
5. Select the **Time Range**.
6. Select **Beginning** or **Ending** as the **Time Range** interval reference point.

7. Select the **Beginning** or **Ending** date.
8. Click **Go**.

   Note: Data for the selected scope is displayed in the primary report page. Data for any available sub-scopes are displayed in tabs. For example, if the selected scope is Entire Network, report data for the entire network appears in the primary report page. The individual network entities within the entire network are considered sub-scopes.

9. To view report data for a specific sub-scope, click on the tab for that sub-scope.

Measurements data export elements

This table describes the elements on the **Measurements** > **Report [Export]** page.

Table 101: Schedule Measurement Data Export Elements

Element	Description	Data Input Notes
Task Name	Name of the scheduled task	Format: Textbox Range: Maximum length is 40 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Task Name must begin and end with an alphanumeric character.
Description	Description of the scheduled task	Format: Textbox Range: Maximum length is 255 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). Description must begin with an alphanumeric character.
Export Frequency	Frequency at which the export occurs	Format: Radio button Range: Fifteen Minutes, Hourly, Once, Weekly, or Daily Default: Once
Minute	If hourly or fifteen minutes is selected for Upload Frequency, this is the minute of each hour when the data will be written to the export directory.	Format: Scrolling list Range: 0 to 59 Default: 0
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM
Day of Week	Day of week on which the export occurs	Format: Radio button

Element	Description	Data Input Notes
		Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday Default: Sunday

Exporting measurements reports

You can schedule periodic exports of data from the **Measurements Report** page. Measurements data can be exported immediately, or you can schedule exports to occur daily or weekly. If filtering has been applied on the **Measurements Report** page, only filtered data is exported.

During data export, the system automatically creates a CSV file of the filtered data. The file will be available in the file management area until you manually delete it, or until the file is transferred to an alternate location using the Export Server feature. For more information about using **Export Server**, see *Data Export*.

Use this procedure to save a measurements report to the file management storage area and to schedule a data export task.

1. Select **Measurements** > **Report**.

   The **Measurements Report** page appears. For a description of each field, see *Measurement elements*.
2. Generate a measurements report.

   For information about how to generate a measurements report, see *Generating a measurements report*.
3. Click to select the scope or sub-scope measurement report that you want to export.
4. Click **Export**.

   The measurement report is exported to a CSV file. Click the link at the top of the page to go directly to the **Status & Manage** > **Files** page. From the **Status & Manage** page, you can view a list of files available for download, including the measurements report you exported during this procedure. The **Schedule Measurement Log Data Export** page appears.
5. Check the **Report Groups** boxes corresponding to any additional measurement reports to be exported.

   Note: This step is optional, but is available to allow the export of multiple measurement group reports simultaneously.
6. Select the **Export Frequency**.

   Note: If the selected **Export Frequency** is **Fifteen Minutes** or **Hourly**, specify the **Minutes**.
7. Enter the **Task Name**.
   For more information about Task Name, or any field on this page, see *Measurements data export elements*.

   Note: **Task Name** is not an option if **Export Frequency** equals **Once**.
8. Select the **Time of Day**.

   Note: **Time of Day** is only an option if **Export Frequency** equals **Daily** or **Weekly**.

9. Select the **Day of Week**.

   Note: Day of Week is only an option if **Export Frequency** equals **Weekly**.

10. Click **OK** or **Apply** to initiate the data export task.

    The data export task is scheduled. From the **Status & Manage** > **Tasks** page, you can view a list of files available for download, including the file you exported during this procedure. For more information, see *Viewing the file list*.

    Scheduled tasks can be viewed, edited, and deleted, and reports of scheduled tasks can be generated from **Status & Manage** > **Tasks**. For more information see:

    - *Viewing scheduled tasks*
    - *Editing a scheduled task*
    - *Deleting a scheduled task*
    - *Generating a scheduled task report*

Glossary

A

AES	Advanced Encryption Standard
AVP	Attribute-Value Pair The Diameter protocol consists of a header followed by one or more attribute-value pairs (AVPs). An AVP includes a header and is used to encapsulate protocol-specific data (for example, routing information) as well as authentication, authorization or accounting information.

C

CAPM	Computer-aided policy making
CSV	Comma-Separated Values The comma-separated value file format is a delimited data format that has fields separated by the comma character and records separated by newlines (a newline is a special character or sequence of characters signifying the end of a line of text).

F

FABR	Full Address Based Resolution Provides an enhanced DSR routing capability to enable network operators to resolve the designated Diameter server addresses based on individual user identity addresses in the incoming Diameter request messages.

F

Full Address Based Resolution	See FABR.

G

GLA	Gateway Location Application A DSR Application that provides a Diameter interface to subscriber data stored in the DSR's Policy Session Binding Repository (pSBR). Subscriber data concerning binding and session information is populated in the pSBR-B by the Policy Diameter Routing Agent (Policy DRA). GLA provides methods for a Diameter node to query binding information stored in the pSBR-B. The query can be by either IMSI or MSISDN. GLA processes Diameter Requests and generates Diameter Answers.
GUI	Graphical User Interface The term given to that set of items and facilities which provides you with a graphic means for manipulating screen data rather than being limited to character based commands.

I

IP	Internet Protocol - IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.
IPFE	IP Front End

I

	A traffic distributor that routes TCP traffic sent to a target set address by application clients across a set of application servers. The IPFE minimizes the number of externally routable IP addresses required for application clients to contact application servers.
ISO	International Standards Organization

K

KPI	Key Performance Indicator

M

MP	Message Processor - The role of the Message Processor is to provide the application messaging protocol interfaces and processing. However, these servers also have OAM components. All Message Processors replicate from their Signaling OAM's database and generate faults to a Fault Management System.

N

NOAM	Network Operations, Administration, and Maintenance

O

OAM	Operations, Administration, and Maintenance. These functions are generally managed by individual applications and not managed by a platform management application, such as PM&C. Operations – Monitoring the environment, detecting and determining faults, and alerting administrators.

O

Administration – Typically involves collecting performance statistics, accounting data for the purpose of billing, capacity planning, using usage data, and maintaining system reliability.

Maintenance – Provides such functions as upgrades, fixes, new feature enablement, backup and restore tasks, and monitoring media health (for example, diagnostics).

R

RBAR	Range Based Address Resolution A DSR enhanced routing application which allows you to route Diameter end-to-end transactions based on Application ID, Command Code, Routing Entity Type, and Routing Entity address ranges.

S

SNMP	Simple Network Management Protocol. An industry-wide standard protocol used for network management. The SNMP agent maintains data variables that represent aspects of the network. These variables are called managed objects and are stored in a management information base (MIB). The SNMP protocol arranges managed objects into groups.
SOAM	System Operations, Administration, and Maintenance

T

T

TSA	Target Set Address An externally routable IP address that the IPFE presents to application clients. The IPFE distributes traffic sent to a target set address across a set of application servers.