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 7.2

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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.

Revision History

Date	Description
January 2016	Accessibility changes throughout.
August 2016	Networking GUI and functionality updates, including Devices, Routes, and Services Multiple Export feature added, including Filename Prefix and Task GUI elements Active alarms export updates Historical events data export elements and even history Security log data and export updates KPIs data export updates Measurement data export updates
October 2016	General Options updates and GUI tabs for Entire Site selection
December 2016	Automated Site Upgrade feature added DSCP GUI and functionality updates

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 these 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 availability 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 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.

Graphical User Interface

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.

Various Oracle applications use a common framework for creating the management console GUI. Users of those applications will note a common style and layout. Depending on the application, the management console might include or omit different elements but the structure should remain familiar.

The GUI structure is defined by areas. The four common areas are:

- Banner Area
- Main Menu (Navigation Area)
- Main Work Area
- Status Area

Depending on the application, each area consists of one or more informational elements. For example, the Main Menu (Navigation Area) may differ from application to application. See *Graphical User Interface Layout* for details of the four areas.

Graphical User Interface Layout

The Graphical User Interface layout table describes the four areas of the Graphical User Interface (GUI) and what informational elements may exist in each. The core framework presents a common set of GUI elements that serve various applications. Some applications may choose not to display one or more elements based on their needs.

Note: The Navigation Area is commonly referred to as the Main Menu. Throughout this document these two terms are used interchangeably.

Table 2: Graphical User Interface Layout

Element	Location	Function
Banner Area	Top bar across the web page, under web browser menu or bookmarks bar	The banner area is identified by the Oracle logo and presents the following elements in order from left to right: • Oracle Logo • Product Name • Product Version • A **Pause Updates** checkbox that allows the users to pause any reoccurring updates while on a given page. When the checkbox is selected, updates are disabled. Note that not all pages support periodic updates. • A context sensitive **Help** link that, when selected, displays the Oracle help pages in a separate browser tab.

Element	Location	Function
		• A **Logged in Account** message with a pull-down menu displaying the user account which is currently logged in. • A **Log Out** link that, when selected, logs the current user out and returns to the login page.
Main Menu (Navigation Area)	Left side of web page, under banner area	A tree-structured menu with links to all pages and forms that can be accessed through the user interface. The plus character (+) indicates a menu item contains page links and 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 web page, under banner area	The Work Area is where most of the work is done and generally comprised of a Title, Toolbar, and Main Work Area. • **Title**: The title is not optional and all applications display this area. Two informational elements are presented here; the page name, or title, which represents the ordered list of navigation steps taken to reach the current page or form and last update time of the current page or form. • **Toolbar**: A number of optional elements may be presented here. Depending on the application and page, one or more of the following may appear: • Work Area Grid Filter Set: Allows the end-user to filter a grid display in various ways. • Work Area Error Display: Groups and presents any errors associated with the main work area display. • Work Area Warning Display: Groups and presents any warnings associated with the main work area display. • Work Area Info Display: Groups and presents any information messages associated with the main work area display. • Work Area Status Display: The status display provides a short status update associated with the main work area display. • Work Area Task Display: Groups and lists all of the long running tasks associated with the main work area display. **Note:** See *Optional Layout Element Toolbar* for additional information.

Element	Location	Function
		• **Main Work Area**: The main work area occupies the bulk of the screen and consists of four primary kinds of information displays: • Form Display: Displays a form for general data entry. • Grid Display: Displays a table-like scrollable grid of data. • Report Display: Displays a formatted view of the data suitable for printing or saving. • Graph Display: Displays a graph of a data set. **Note:** The Grid and Form display types can be organized using a tabbed display. 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*.
Status Area	Bottom bar of web page, under navigation and main work areas	The status area is located at the bottom of the page and spans corner to corner. The following elements are presented in order from left to right: • Connection Status: • 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 system role of the machine to which the user is connected. • Refresh Status: Displays the current status of the **Pause Updates** action presented in the banner area. Updates are either enabled or disabled. • Alarm Panel: Displays a count of critical, major, and minor alarms. Additionally, a count of SNMP traps is displayed.

Supported Browsers

This application supports the use of Microsoft® Internet Explorer 9.0, 10.0, or 11.0.

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

After entering the URL, but before logging in, the **Oracle System Login** page is presented in the browser. Located just below the **Log In** button is a customizable message. Use this procedure to create a message suitable for your needs.

1. From the **Main Menu**, select **Administration** > **General Options**.
2. Locate **Login Message** in the **Variable** column.
3. Enter the desired login 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.

The next time you navigate to the **Oracle System Login** page, the customized message displays.

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.

Multi-Server Graphical User Interface Access

Depending on the application, the need to access multiple management consoles may be required. For example, on a DSR it's common to work in both the NOAM and SOAM consoles simultaneously. To simplify this task, a Single Sign-On (SSO) feature is provided to eliminate the need to authenticate twice while working from a single workstation. To configure this feature, see *Configuring single sign-on zones*.

Continuing with the DSR example (after SSO has been configured), you can log into the GUI from either the NOAM or SOAM, then access the GUI on other server without having to re-enter your login credentials.

1. In the browser URL field, enter the fully qualified hostname (FQDN) 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 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 (FQDN) 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 Organization

The main Menu, or Navigation Area, is a tree-structured menu of all pages and forms that can be accessed through the user interface. The core framework presents a common set of Main Menu options that serve various applications. The common Main Menu options are:

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

Applications, such as DSR, build upon this framework to present features and functions. For example, the DSR Network OAM GUI may present the following Main Menu options in addition to the common options:

- Communication Agent
- Diameter Common
- Diameter
- RADIUS
- Policy and Charging
- MAP-Diameter IWF

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

Note: Depending on the application, some Main Menu options may be configurable from one server but view-only on another. For example, the DSR Network OA&M server shares some common options with the DSR System OA&M server but those options may be configurable on one and view-only from the other. This remains true for other applications.

Main Menu Options

The Main Menu Options table briefly describes the options available in the core framework of the GUI. Applications, such as DSR, add additional menu items not presented here. Users belonging to groups with lesser permissions than administrative may only see a subset of the options listed. See *Groups Administration* regarding group permissions.

Note: Users of an application, such as DSR, should be aware that some optional features do not appear in the main menu until those features are activated.

Table 3: Main Menu Options

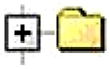
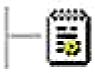
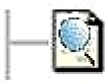
Menu Item	Function
Administration	The Administration menu allows the user to: • General Options. Session and password related global options, login and welcome messages, and other miscellaneous options such as MMI access, max records per page, and export settings. • Set up and manage user accounts • 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, health check, and reporting • Authenticate LDAP servers • Configure SNMP trapping services • Configure a remote server • Configure DNS elements
Configuration	On the NOAM, allows the user to configure: • Networks • Network Devices

Menu Item	Function
	• Network Routes • Network 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.
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

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.

Icon	Name	Description
📄	File	Contains operations in a Data View page.
🗐	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.
Z	Logout	Logs the user out of the user interface.

Missing Main Menu options

Permissions determine which Main Menu options are visible to users. Permissions are applied to groups and those groups are then assigned to users. The default group, admin, is permitted access to all GUI options and functionality. Additionally, members of the admin group are allowed to manage groups and users including setting permissions.

Main Menu options vary according to the group permissions assigned to a user's account. Depending on your group 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 Elements

Common controls allow you to easily navigate through the system once you become familiar with the GUI. 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.

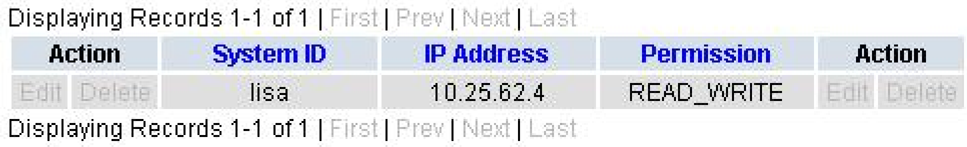
Work Area Displays

In the main work area the four types of displays are forms, tables (grid), reports, and graphs. Additionally, the tables and forms displays can be organized using a tabbed display.

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*.



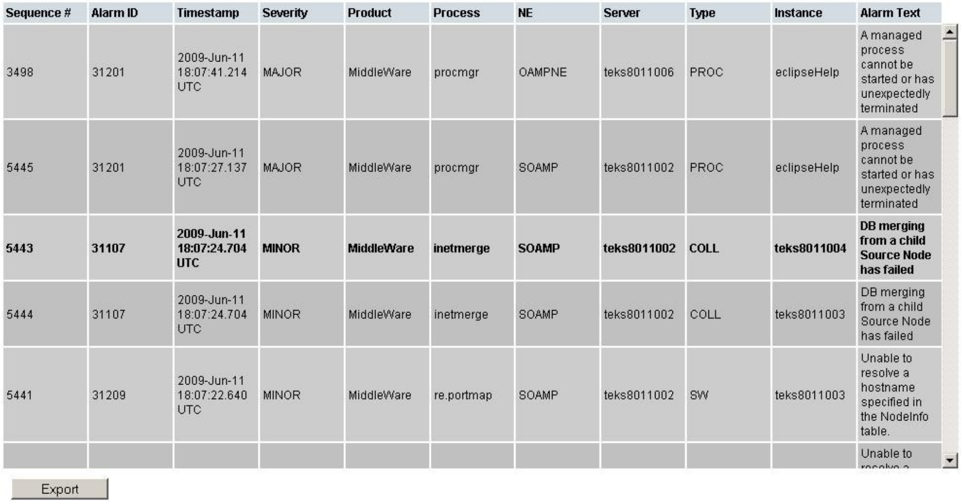
Displaying Records 1-1 of 1 | First | Prev | Next | Last

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 1: 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*.



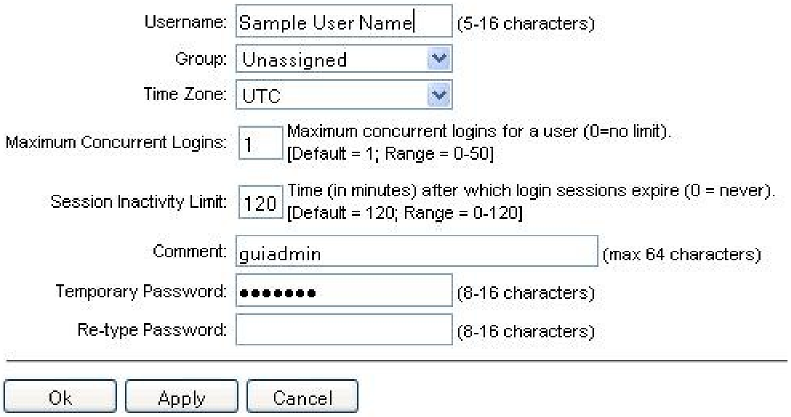
Sequence #	Alarm ID	Timestamp	Severity	Product	Process	NE	Server	Type	Instance	Alarm Text
3498	31201	2009-Jun-11 18:07:41.214 UTC	MAJOR	MiddleWare	procmgr	OAMPNE	teks8011006	PROC	eclipseHelp	A managed process cannot be started or has unexpectedly terminated
5445	31201	2009-Jun-11 18:07:27.137 UTC	MAJOR	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

Figure 2: 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 pull-down lists, buttons, and links.

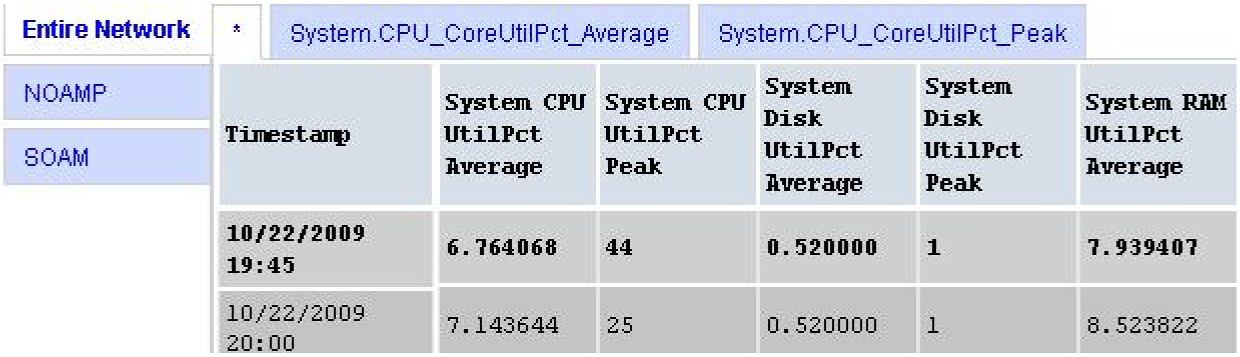


Username:	Sample User Name	(5-16 characters)
Group:	Unassigned	
Time Zone:	UTC	
Maximum Concurrent Logins:	1	Maximum concurrent logins for a user (0=no limit). [Default = 1; Range = 0-50]
Session Inactivity Limit:	120	Time (in minutes) after which login sessions expire (0 = never). [Default = 120; Range = 0-120]
Comment:	guiadmin	(max 64 characters)
Temporary Password:	●●●●●●●	(8-16 characters)
Re-type Password:		(8-16 characters)

Figure 3: Form Page

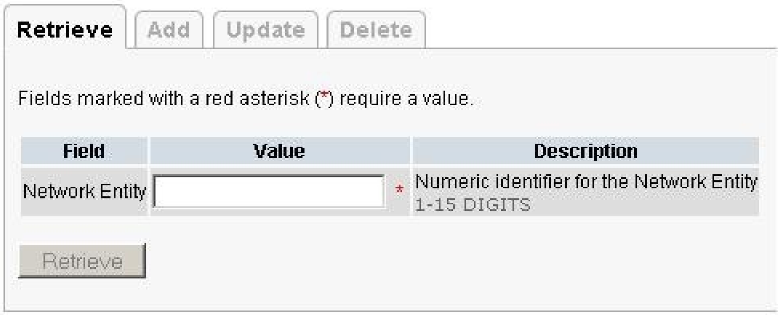
Tabbed Pages

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.



Timestamp	System CPU UtilPct Average	System CPU UtilPct Peak	System Disk UtilPct Average	System Disk UtilPct Peak	System RAM UtilPct Average
10/22/2009 19:45	6.764068	44	0.520000	1	7.939407
10/22/2009 20:00	7.143644	25	0.520000	1	8.523822

Figure 4: Tabbed Pages



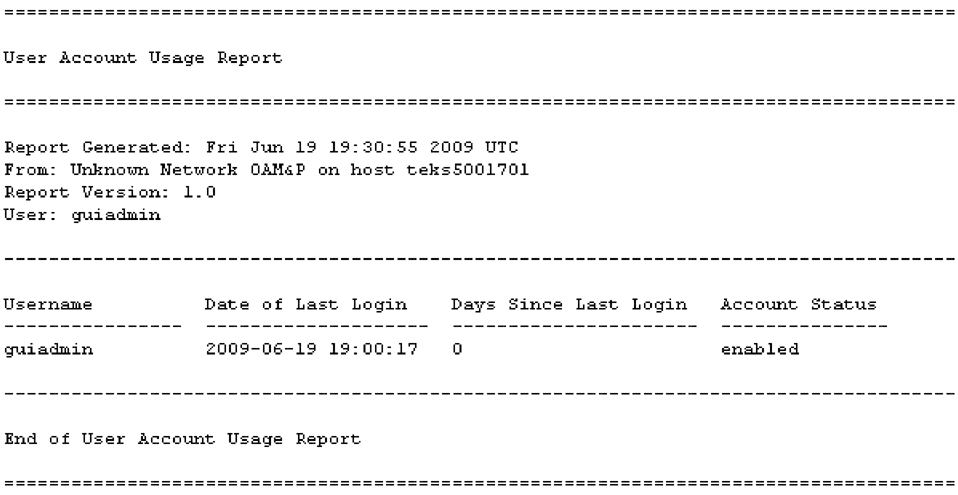
Fields marked with a red asterisk (*) require a value.

Field	Value	Description
Network Entity	*	Numeric identifier for the Network Entity 1-15 DIGITS

Figure 5: Tabbed Pages

Reports

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



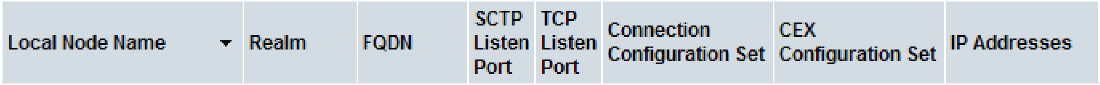
```
=====================================================================================

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 6: Report Output

Column Sorting

Sorting by column is accomplished by clicking the column header. Once a column is sorted, a direction indicator appears showing the direction of the sort. Clicking the column header again reverses the direction of the sort. It is important to note that the direction indicator does not appear until after the first click. A page refresh clears the custom sorting.

Sorting is not necessarily available on every column. See *Figure 7: Sorting a Table by Column Header* for an example of the direction indicator.



Local Node Name ▾	Realm	FQDN	SCTP Listen Port	TCP Listen Port	Connection Configuration Set	CEX Configuration Set	IP Addresses

Figure 7: 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.
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.

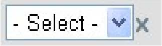


Figure 8: Clear Field Control X

Optional Layout Element Toolbar

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

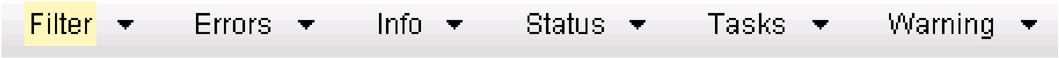


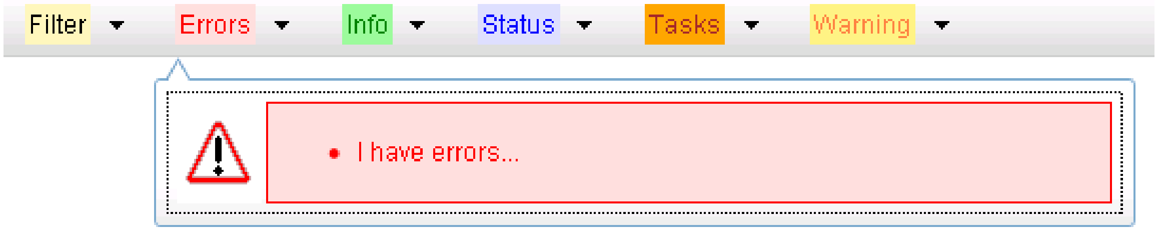
Figure 9: Optional Layout Element Toolbar

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.



- I have errors...

Figure 10: 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.
2. Click **X** to close the element display.

Note: User's relying on keyboard navigation (no mouse or pointer device) are unable to select the close action represented by the **x**. To close the element display using keyboard navigation, navigate back to the toolbar element and press the spacebar.

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:

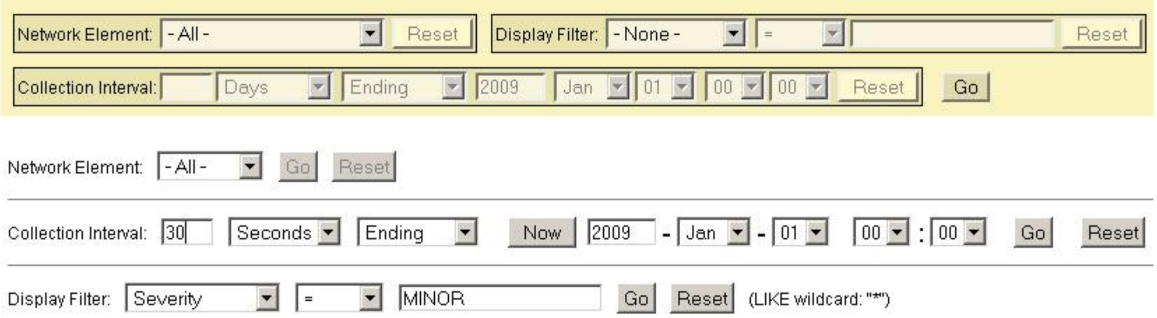
- Network Element – When enabled, the Network Element filter limits the data viewed to a single Network Element.

  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.



Network Element: - All -

Display Filter: - None - =

Collection Interval: Days Ending 2009 Jan 01 00 00

Network Element: - All -

Collection Interval: 30 Seconds Ending Now 2009 - Jan - 01 00 : 00

Display Filter: Severity = MINOR (LIKE wildcard: "*")

Figure 11: 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.

Operator	Description
>	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 located in the banner area of the page. Uncheck the **Pause updates** checkbox to resume automatic updates. The current status of the **Pause updates** action is displayed in the status area of the page.

Note: The **Pause updates** checkbox is available only on some pages. Not all pages support this functionality.

Max Records Per Page Controls

Maximum 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 Maximum Records Per Page is used. Use this procedure to change the Maximum Records Per Page.

1. From the **Main Menu**, select **Administration** > **General Options**.
2. Change the value of the **Maximum Records Per Page** variable.

   Note: Maximum Records Per Page has a range of values from 10 to 100 records. The default value is 20.
3. Click **OK** to save the change or **Cancel** to undo the change and return the field to the previously saved value.

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 elements

Table 8: General Options Elements describes the elements of the **General Options** page.

Table 8: General Options Elements

Field (* indicates a required field)	Description	Data Input Notes
* Enable MMI Access	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.	Format: Numeric Range: 0 (Disabled), 1 (Enabled) Default: 1
* Export File Compression Type	The compression algorithm used when export data files are initially created.	Format: Numeric Range: 0 (None), 1 (gzip), 2 (bzip2) Default: 1
* Last Login Expiration	Indicates the number of days of inactivity before a user account is disabled. The account is disabled the next time the user 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
* Lock out Window	Indicates the amount of time (in minutes) in which exceeding the **Maximum Consecutive Failed Login** attempts causes 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 disables the **Maximum Consecutive Failed Login** attempts setting.	Format: Numeric Range: 0 - unlimited Default: 30
* 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	Format: Numeric Range: 0 - 10 Default: 5

Field (* indicates a required field)	Description	Data Input Notes
	user or any user with admin group permissions. Entering a value of 0 indicates never disable.	
* 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
* Maximum Records per Page	The maximum number of records to display per page.	Format: Numeric Range: 10 - 100 Default: 20
* Minimum Password Difference	The Minimum character difference between passwords.	Format: Numeric Range: 0 - 16 Default: 0
* Minimum Password Length	This field indicates the minimum number of valid characters required for a user password.	Format: Numeric Range: 8 - 16 Default: 8
* Password Expiration	The number of calendar days 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
* SAML Enabled	Enables SAML authentication of users (Security Assertion Markup Language).	Format: Numeric Range: 0 (Disabled), 1 (Enabled) Default: 0
* SAML Inactivity Timeout	The time (in minutes) before SAML authenticated sessions expire.	Format: Numeric Range: 0 (no expiration), 3600 Default: 120
* 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

Field (* indicates a required field)	Description	Data Input Notes
* Site Upgrade Bulk Availability	Site based upgrade availability for bulk upgrade of MP groups. **Note:** This cannot be changed when any site upgrade is active.	Format: Numeric Range: 0 (none), 1 (50%), 2 (66%), and 3 (75%) Default: 1
* Site Upgrade SOAM Method	Site based upgrade SOAM method. **Note:** This cannot be changed when any site upgrade is active. Bulk upgrade will upgrade all non-active SOAM servers together.	Format: Numeric Range: 0 (serial), 1 (bulk) Default: 1
* Durability Administrative State	The durability state of the system.	Format: Numeric Range: 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 data is replicated to the active or standby NOs, as well as the secondary NO) Default: 1
Disabled Account	Message displayed when attempting to login to a disabled account.	Format: Alphabetic Default: This account has been disabled.
Certificate Domain Name	Certificate Domain Name, used for Single Sign On and HTTPS certificates, for example, yourdomain.com.	Format: Alphanumeric, hyphen, and decimal characters Range: 255 characters Default: Blank
Failed Login Message	Message displayed on failed login.	Format: Alphabetic Default: Login failed
IP Authorization Denied message	Configurable portion of IP Authorization Denied message.	Format: Alphabetic Default: Access denied
Login Message	Configurable portin of login message seen on the login screen.	Format: Alphabetic Default: Welcome to the Oracle System Login
Welcome Message	Welcome message seen after successful login. **Note:** You can customize the message appearance by using HTML code; for example, to insert a line break.	Format: Alphabetic Default: Initially displays an example of a user-defined welcome message.

Field (* indicates a required field)	Description	Data Input Notes
Export Data Space Replace	The character to replace a space in the export group name when added to the export directory or filename.	Format: Alphanumeric Default: Underscore (_)

Viewing the general options page

Use this procedure to view the general options page.

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

The **General Options** page lists all option variables, the current value of each variable, and a brief description of each setting including default values, if applicable.

Updating general options

Use this procedure to update one or more general options.

You can change more than one option on this page.

1. Select **Administration** > **General Options**.
2. Locate the option or options you want to change in the variable column.
3. Change the value of the option or options.

   Input parameters are often provided in the description along with the default value if applicable.
4. Click **OK** to save the change(s) or **Cancel** to undo the change(s) and return the option(s) to the previously saved value(s).

The general option(s) are 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, the account is disabled until a password is established. If using remote authentication, an authentication server must be configured.	Format: Checkbox 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.	Format: Checkbox Range: Allow GUI Access and/or Allow MMI Access

Element	Description	Data Input Notes
	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).	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.
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).

Element	Description
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.

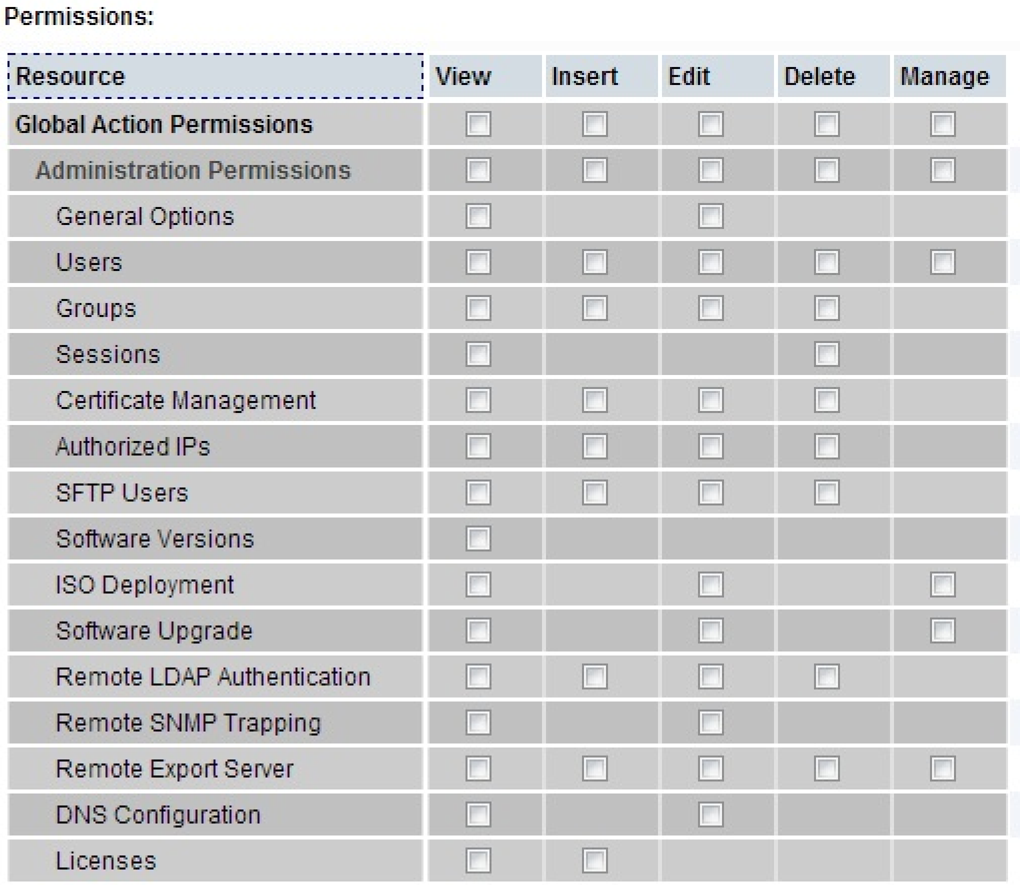
A group is a collection of one or more users who need to access the same set of functions. Permissions are assigned to the group for each application function. All users assigned to the same group have the same permissions for the same functions. In other words, you cannot customize permissions for a 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 12: 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.
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.

Permission	Description
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	
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.

Permission	Description
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 set up data replication between IPFEs, specify port ranges for TCP traffic and set application server monitoring parameters.
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
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

Permission	Description
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.
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.

Permission	Description
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

Permission	Description
	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 a user to define Mediation Rule Templates.
Enumerations	Allows a user to view and edit Mediation Enumerations.
Triggers	Allows a user to view and edit Mediation Triggers.
State & Properties	Allows a user to set the state of a Rule Template and configure settings for a Rule Template.
Internal Variables	Allows the user to view, create, edit, and delete Interval Variables.
Measurements	Allows the user to view, create, edit and delete custom measurements and measurements based on a particular Action.
Rule Sets	Allows a user 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, view, and delete Applications
Exceptions	Allows a user to edit and view Exceptions
Destinations	Allows a user to create, edit, view and delete Destinations
Address Tables	Allows a user to create, view, and delete Address Tables
Addresses	Allows a user to create, edit, view, and delete Addresses
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

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, view, and delete Applications.
Exceptions	Allows a user to edit and view 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 FABR System Options.

CPA Group Administration permissions

Table 24: CPA Configuration Permissions describes the Charging Proxy Application (CPA) Group Administration permissions.

Table 24: CPA Configuration Permissions

Permission	Description
CPA System Options	Allows a user to view and edit CPA System Options
CPA Message Copy	Allows a user to view and edit Message Copy elements for CPA
CPA SBR	Allows a user to view and edit SBR elements

Service Broker Group Administration permissions

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

Table 25: 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 26: 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 27: 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 28: 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.
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 29: SIP Timer Permissions

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

Table 30: 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 31: SS7/Sigtran Configuration Permissions

Permission	Description
Adjacent Server Groups	Allows the user to view, insert, edit, and delete Adjacent Server Groups.
Local Signaling Points	Allows the user to view, insert, edit, delete, and generate a report on Local Signaling Points.
Remote Signaling Points	Allows the user to view, insert, delete, generate a report, and view status on Remote Signaling Points.
Remote MTP3 Users	Allows the user to view, insert, delete, and view the status of Remote MTP3 Users.
Link Sets	Allows the user to view, insert, delete, generate a report, and view status of Link Sets.
Links	Allows the user to view, insert, delete, generate a report, and view status of a Link.
Routes	Allows the user to view, insert, edit, delete, generate a report, and view status of Routes.
SCCP Options	Allows the user to view and edit SCCP Options.
MTP3 Options	Allows the user to view and edit MTP3 Options.
M3UA Options	Allows the user to view and edit MTP3 Options.
Local Congestion Options	Allows the user to view Local Congestion Options.
Local SCCP Users	Allows the user to view, insert, delete, generate a report, and view status of the Local SCCP Users.

Table 32: SS7/Sigtran Maintenance Permissions

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

Table 33: SS7/Sigtran Command Line Interface

Permission	Description
Command Import	Allows the user to use the Command Import page.

UDR Group Administration permissions

The following table describes the UDR Group Administration permissions.

Table 34: UDR Group Administration Permissions

Permission Group	Description
UDR Configuration	
Provisioning Options	Allows a user to view and edit provisioning option settings.
Ud Client Options	Allows a user to view and edit Ud client option settings.
UDRBE Options	Allows a user to view and edit UDRBE option settings.
Ud Remote Server Configuration	Allows a user to view and edit Ud remote server configuration settings.
Provisioning Connections	Allows a user to view, add, edit, or delete provisioning connections.
Ud Client Key Details	Allows a user to view and edit Ud client key detail settings.
Subscribing Client Permissions	Allows a user to view, add, or delete subscribing client permissions.
Ud Client Attribute MAP SEC	Allows a user to view, add, edit, or delete Ud client attribute MAP SEC settings.
Subscriber Query and Provisioning	Allows a user to view, add, edit, or delete subscriber query and provisioning settings.
Create Profile / Add Entity	Allows a user to view and add profiles and entities.
Auto Enrollment Options	Allows a user to view and 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 and edit command log export option settings.
Pool Spanning Options	Allows a user to view and 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.
Ud Client Options	Allows a user to view and edit ud client option settings.
Ud Client Remote Server Configuration	Allows a user to view and edit ud remote server configuration settings.

Permission Group	Description
Ud Client Attribute Mapping	Allows a user to view and edit ud attribute mapping.
UDR SEC	
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.
Entity Definition	Allows a user to view, add, edit, or delete an entity field set.
UDR Maintenance	
Subscriber Query	Allows a user to perform a subscriber query.
Connections	Allows a user to view current external connections.
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.
Database Auditor	Allows a user to view and 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, edit, or manage the status of ud client connections.

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.

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 35: 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.

Element	Description
Remote IP	Displays the IP address of the machine from which the user connected to 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 36: 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 37: 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.

Element	Description	Data Input Notes
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 38: 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

Element	Description	Data Input Notes
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 39: 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.

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** menu choice is only available on the NOAM. It includes server, Server Group (SG) and Entire Site (ES) options. in this context, site refers to this grouping (SO SG plus all replication children MP SGs). This additional automation prevents having to initiate a server group upgrade on the SO group followed by additional form submissions for each MP group.

Note: In this context, a site is collection of servers that share a topological relationship, regardless of phsical location or networking configuration. Site based upgrade, a site consists of an active SOAM, its mate or mates, and its replication children (MPs).

In this context, site refers to the topological grouping of the SO SG and all its replication children MP SGs, regardless of geographic location of the servers. For example, the site upgrade includes a spare SOAM which is a member of SO SG, but is in another geographic location.

Use the **Upgrade** page 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. Upgrade functionality is available on a server, SG, or site basis and supports pause, restart, and cancellation functionality.

There are several situations where the SG or site upgrade task will automatically pause or stop itself to allow you to perform recovery actions. You can then restart or cancel the overall upgrade. It is also possible to restart SG or site upgrade on a partially upgraded SG or site. When an SG or Site upgrade is paused or canceled, any currently running upgrades (from a TPD standpoint) continue until they complete or fail. Servers that are in the Pending state will not be started.

SG upgrades automatically pause in the following situations:

- A server upgrade fails.
- A response of false from canServerUpgrade() function is received when the server requires an upgrade pre-check.
- A server upgrade is cancelled after being hung.

A SG upgrade can be ended by cancelling the SG upgrade from the **Status &Manage > Tasks > Active Tasks** page. The SG upgrade can then be restarted using the **Administration > Software Management > Upgrade** page. A site upgrade can be ended by cancelling the site upgrade from the **Status & Manage** > **Tasks** > **Active Tasks** page. The site upgrade can then be restarted using the **Administration** > **Software Management** > **Upgrade** page.

The server group upgrade provides the ability to upgrade all servers in a server group by filling out a form with options such as Mode and Availability, selecting an ISO, and clicking **Ok** to initiate the upgrades. From that point, long running tasks on the NOAMP manage the upgrade of each server in the group, ensuring that enough servers in the group remain active to handle ongoing system management and subscriber traffic. While the servers are upgrading, you can view the progress of each server's upgrade. You can start an automated server group upgrade on multiple server groups with additional GUI actions.

Note: The instructions in this section provide a generic framework for upgrades. You 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 elements

Table 40: Upgrade Elements describes the elements on the **Upgrade** page. This page supports Automated Site Upgrade, as well as Automated Server Group (ASG) and server upgrade.

Note: There are two tabs on this page: **NO_SG** and **SO_SGx**. The elements in *Table 40: Upgrade Elements* 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. **Entire Site** is only available on the **SO_SGx** tab.

The grid reflects the the following rules:

- One row of tabs or two rows of tabs is displayed, depending on the selected server group.
- The top (or only) row is always the OAM server groups (NO and SO). Multiple NO and SO server group tabs can exist in the top row.
- The second row appears when an SO group is selected, and it contains an **Entire Site** tab, plus a tab for each SO and MP server group in the SO group's administrative domain. An administrative domain is a server group and its replication children SGs, which all share a topological relationship regardless of geographic location.
- When the **Entire Site** tab is selected, the grid displays rows of server groups.
- The single row of tabs that is initially displayed shows the NOAMP server groups followed by the SOAM server groups. The SOAM server groups indicate sites that are eligible for site upgrade.
- When a SG tab is selected, the grid displays rows of servers (as with ASG).
- If filtering has been applied, the **Entire Site** tab only appears when the result set for the site contains more than one server group.

Note: The NO server group is not eligible for Automated Site Upgrade. When you select a SO server group from **Entire Site** on the **SO_SGx** tab., you can perform Site Upgrade on all servers in the SO's administrative domain.

Table 40: Upgrade 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.

Element	Description
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.
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.
Upgrade Method (Entire Site)	The method to be used for this server group's upgrade. Methods are associated with SG functions by the application.
Server Upgrade States (Entire Site)	A list of the number of servers in each state in the server group. For example, Ready (1/2), Upgrading (1/2).
Server Application Versions (Entire Site)	A list of the number of servers in each state in the server group For example, 7.2.0_72.41.8 (1/2), 7.2.0_72.41.9 (1/2).
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.
Entire site	• When the **Entire Site** tab is selected, some buttons are disabled because they only apply to selected server row(s), not selected SG row(s). These include **Backup** and **Checkup**. These are available when you are in an SG tab (using AW 6.0 ASG). • On the **Entire Site** tab, **Accept** is replaced with **Site Accept**. This allows you to accept all upgrades in the site by Server Group, much like **Backup All** and **Checkup All**. • When the **Entire Site** tab is selected, **Auto Upgrade** is changed to **Site Upgrade**. Clicking **Site Upgrade** generates a report of the planned upgrade order for all the servers in the site. You can then select an ISO and initiate the upgrade. If the site upgrade is already in progress, the form shows the status of each SG and each server. **Note:** If filtering has been applied, the Entire Site tab only appears when the result set for the site contains more than one server group.
Backup	Initiates backups on a server and server group basis based on the active server group tab.
Backup All	Initiates backups on a network element basis.

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

Element	Description
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. This is disabled on the active **Entire Site** tab.
Checkup All	Initiates upgrade health checks on a network element basis.
Upgrade Server	Enabled when one or more rows within the active server group tab are selected and the server is in the Ready state.
Upgrade Server or **Auto Upgrade** from the NO_SG tab	Initiates a server upgrade on servers with the action of upgrade. The form also allows the user to restart site upgrade on a partially upgraded site. **Note:** Upgrade is initiated according to the auto-upgrade policy on servers with an action of Auto Upgrade.
Site Upgrade or **Upgrade Server Group** from the Entire Site tab	Initiates a site upgrade. The form also allows the user to restart site upgrade on a partially upgraded site.
Site Upgrade	Moves to a form displaying the planned upgrade order for all the servers in the site. You can then select an ISO and initiate the upgrade. If the site upgrade is already in progress, the form shows the status of each SG and each server.
Site Accept	Initiates site accepts on a server group basis. This form is available only from the **Entire Site** tab, and it applies to servers in the current site only.
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.
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. When the **Entire Site** tab is displayed, the report contains information about the currently selected site. The report begins with the overall site upgrade status. If a site upgrade is in progress, the start time and running time will be included. After this, the report includes the server groups in their upgrade sets (which shows the order of the site upgrade, whether in progress or planned). Each server group's upgrade method is also shown. The report also lists each server and its current status (Backup Needed, Ready, Upgrading, Failed, and so on) and its software version.
Report All	Generates a report for all servers in all server groups. When the **Entire Site** tab is displayed, this report shows all ongoing site upgrades in the topology (in case multiple sites are being upgraded simultaneously).

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.

⚠ 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).

Overview of the automated site upgrade procedure

The information in this section provides a general overview of the automated site upgrade process. Always refer to the application specific upgrade instructions based on each release.

Follow these general steps when performing an automated site upgrade:

1. Upgrade the NO server group serially (one at a time) to ensure at least one NO is always active to provide OAM&P.
2. Upgrade the DRNO server group. Note that some products upgrade these first.
3. Choose an SO network element and upgrade it as follows:
   - The SO servers can either be serial or bulk (non-active at once, then active) as specified in **General Options**.
   - Upgrade the MP servers using desired availability settings. For site upgrade, see WRITER NTOE ADD XREF TO GEN OPTOINSThe code uses the following rules (some of which can be specified by the user):
     - Servers are upgraded in parallel as long as the number of active, non-upgrading servers exceeds the user specified minimum availability.
     - Servers can be upgraded serially instead
     - Servers are upgraded in HA order meaning Spare servers followed by Observer, then Stby, then Active. An additional application-level customization allows certain servers to be upgraded last, once the rest of their group has upgraded.
4. Repeat step 3 until all SO network sites are upgraded (thereby completing upgrade of the entire network).
5. Accept the upgrade.

⚠ 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**.

Note: **Backup** is not available on the **Entire Site** tab.

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 41: 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 • No back up
Current application version	The current version of the application.
Full Backup Options	

Element	Description
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 42: 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.
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:

Element	Description
	• **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 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 43: 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	
Checkup Type	The upgrade health check type. Choices include: • Advance Upgrade • Early Upgrade • Pre-Upgrade • Post-Upgrade

Element	Description
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.
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 44: 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 Upgrades

Deploy the ISO images and run all health checks specified in the application upgrade guide, then back out upgrades, and it is now time to initiate the upgrade. You can choose to upgrade individual servers, server groups, or perform an automated upgrade for the entire site.

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.

Individual Server Upgrade

Use the following procedure to initiate an individual server upgrade.

Note: The **Upgrade** menu choice is only available on the NOAM.

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Select one or more **Hostname(s)** on the **NO_SG** tab view..
3. Select **Upgrade Server**.
   The displayed GUI page shows configuration information about the selected Hostname.
4. Select the appropriate ISO media file from the **Upgrade ISO** pulldown list.
5. Select **OK**.

The system initiates the upgrade.
Initiate Server Upgrade elements

Table 45: Initiate Upgrade Elements (Individual Servers) describes the elements on the **Initiate Upgrade** form for individual server upgrades.

Table 45: 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 46: 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 • 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.

Automated Site Upgrade

Use the following procedure to initiate an automated upgrade for an entire site.

1. Select **Administration** > **Software Management** > **Upgrade**.
2. Select the SO SG tab corresponding to the site to be upgraded.
3. Select a **Entire Site**.
4. Select **Site Upgrade**.
5. Select an ISO.
6. Select **Site Accept** when ready to accept the upgrade. This action might need to take place based on site configuration or testing requirements.

The system initiates the site upgrade.
Initiate Site Upgrade elements

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

Table 47: Site Initiate Upgrade Elements

Element	Description
Cycle	Displays the upgrade cycle in which the indicated servers will be upgraded.
Action	The configured upgrade type (depends on the selected ISO).
Server Group	Displays the server groups affected by the upgrade cycle.
Server	Displays the servers included in the upgrade (including Release).
Function	Displays the function of the server group. The function is provisioned by the application.

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**.

  Note: You can also use **Report** for a site upgrade report on the **Entire Site** tab.

- 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 48: 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.

Element	Description	Data Input Notes
		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
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.

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.

A configuration mode option is provided that allows the user apply a configuration to all servers in the system or only to a specific site.

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.

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 49: SNMP Administration Elements

Element	Description	Data Input Notes
Configuration Mode	A configuration mode that determines whether the trap configuration is applied to all servers in the system or only to a specific site.	Format: Option Range: Global or Per-Site
Manager 1	Manager to receive SNMP traps and send requests. It could be a valid IP address or a valid hostname.	Valid IPv4, IPv6 address or a valid hostname. The port is optional, and can be specified by following the network address with a colon (:) and the port number. **Note:** IPv6 address must be encased in square brackets if the port is to be specified, for example [address]:port. 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 Port Format: Numeric Port Range: 1 to 65535 **Note:** If the port isn't specified, the standard SNMP trap port of '162' is used. Default: No manager is configured.
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.

Element	Description	Data Input Notes
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. • 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.	Format: Pulldown list Range: SNMPv2c, SNMPv3, or SNMPv2c and SNMPv3 Default: SNMPv2c and SNMPv3
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	Format: Alphanumeric [a-z, A-Z, 0-9] Range: 1 - 31 characters Default: snmppublic

Element	Description	Data Input Notes
	Versions. The length of community name should be less than 32 characters.	**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: • 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**.
2. Select the desired **Server Group** tab.
3. Click **Insert**.
4. Update the options as appropriate.

   For more information regarding any field on this page, see *SNMP administration elements*.
5. Click **OK** 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:

1. Select **Administration** > **Remote Servers** > **SNMP Trapping**.
2. Select the desired **Server Group** tab.
3. Select the desired SNMP manager configuration by clicking on the line.
4. Click **Edit** to view the settings. When complete click **Cancel** if no changes are desired.

Updating SNMP trap settings

Use this procedure to update SNMP trap settings:

1. Select **Administration** > **Remote Servers** > **SNMP Trapping**.
2. Select the desired **Server Group** tab.
3. Select the desired SNMP manager configuration by clicking on the line.
4. Click **Edit** to view the settings
5. Update the options as appropriate.

   For more information regarding any field on this page, see *SNMP administration elements*.
6. Click **OK** to submit the information.

The SNMP trap changes are saved and activated.

Deleting SNMP trap managers or configurations

Use this procedure to remove one or more SNMP trap managers or to delete the configuration in its entirety.

1. Select **Administration** > **Remote Servers** > **SNMP Trapping**.
2. Select the desired **Server Group** tab.
3. Select the desired SNMP manager configuration by clicking on the line.
4. To delete the entire configuration, click **Delete** and respond to the confirmation dialogue box. The entire **SNMP Trapping** configuration is deleted.
5. To delete a one or more managers, click **Edit**.

6. Identify the target manager and remove the IP address or hostname from the **Manager** field.

   For more information regarding this or any field on this page, see *SNMP administration elements*.
7. Click **OK** to apply the settings.

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.

Suspending and resuming SNMP trap managers

Use this procedure to suspend or resume SNMP trap managers:

1. Select **Administration** > **Remote Servers** > **SNMP Trapping**.
2. Select the desired server group tab.
   The trap managers configured for that server group appear.
3. Select the desired trap manager. Click **Suspend** or **Resume** based on the current state. A dialogue box appears requesting confirmation. Confirm the choice.

The SNMP manager state changes.

Data Export

The data export feature allows the user to create export jobs to remote servers. Export data may include backups, configuration and provisioning data, and various performance indicators and logs.

Data Export Overview

The Data Export page can be accessed from **Administration** > **Remote Servers** > **Data Export** under the main menu.

This feature allows you to create jobs to regularly transfer files or entire directories out of the file management area to a remote server using rsync.

- You can schedule up to 5 jobs to run per site (NO or SO)
- Each job can select one or more file management area subdirectories to include in the job.
- Each job can have its own schedule.
- Jobs can be tracked using the active tasks screen under status and manage. User defined tasks name can be applied for easy tracking. See *Tasks* for more information.

Note: You are not limited to one remote server. Up to 5 different remote servers may be utilized.

Data Export pulls from files located in the file management area. Various automated and manual processes use the file management area to store files. These include the following types:

- Active Alarms (export task). See *Exporting active alarms*.
- Alarm and Event History (export task). See *Exporting alarm and event history*.
- Security Log (export task). See *Exporting security log files*.
- KPIs (export task). See *Exporting KPIs*.
- Measurement Reports (export task). See *Exporting measurements reports*.
- Backups (depending on the application, this may include provisioning and configuration data).

Types designated as export tasks are scheduled by the user using forms accessed from the applicable page. It is important to understand that when you are scheduling an export task from one of these forms, you are not scheduling an export job to the remote server. You are scheduling an export task to the file management area. See *Files* for more information.

Files to be selected for export jobs are sourced from the file management area. Within the file management area, only files in the **export** and **backup** directories are eligible for export. Selecting the scope of files to be exported is accomplished by defining a directory path, starting with the **export** or **backup** directories, and using wildcards to include a desired range of files. A simple search using your favorite search engine will explain wildcards and how to use them.

As the names infer, the **backup** directory hosts the backup files and the **export** directory hosts various performance indicators and log files generated by export tasks. See *File name formats APDE* for a description of directory structure and file name formats. For a practical view of files on your system, navigate from the GUI main menu to the **Status & Manage** > **Files** page and browse the various entries presented under each of the host tabs (this assumes some export tasks have already been executed).

Table 50: Data Export Examples presents some examples when defining files to be transferred. Some of these examples may not be practical but convey a point.

Table 50: Data Export Examples

Files to Transfer	Description
export/*	Default value. Includes all subdirectories and files from the export directory.
backup/*	Includes all subdirectories and files from the backup directory.
export/*,/backup/*	Includes all subdirectories and files from both the backup and export directories.
export/<hostname>/*	Includes all export subdirectories and files from the specified host.
export/<hostname>/Events/*	Includes all events files from the specified host.
export/*/Events/*	Includes all events files from all hosts.
export/<hostname>/Events/*/*2016??01*	Includes all events files from the specified host and all network elements that occurred on the first day of each month in the year 2016 (The date segment is part of the file naming convention).
export/<hostname>/Alarms/*	Includes all alarm files from the specified host.
export/<hostname>/KPI/*	Includes all KPI files from the specified host.
export/<hostname>/Measurements/*	Includes all Measurements files from the specified host.
export/<hostname>/Seculog/*	Includes all Security Log files from the specified host.

When configuring an export job, the typical scheduling mechanisms are available. These include **Upload Frequency**, **Minute**, **Time of Day**, and **Day of Week**. The minimum export frequency is 15 minutes with the other options being hourly, daily, and weekly. Depending on what upload frequency is selected, some scheduling choices may become inactive and the buttons or pull-down menus are grayed out. For example, if you were to select a frequency of daily, only the Time of Day pull-down menu would be active. The minute pull-down menu and the Day of Week buttons would be inactive and grayed out. See *Data Export elements* for information on the scheduling options.

File synchronization is managed using rsync. Depending on the OS and implementation of the remote server, it may be required to define the path to the rsync binary on the remote server. This is not common but an option is available to do that. Otherwise, this can be left blank. See *Data Export elements* for more information.

Several file compression choices are available, these include gzip, bzip2, and none. By default gzip is used. Based on scheduling, the compressed files are temporarily created on the local host once they are transferred to the remote server. The file compression choices can be made from the General Options form. See *General Options elements*.

Data Export elements

This table describes the elements on the **Administration** > **Remote Servers** > **Data Export [Insert/Edit]** form.

Table 51: Data Export Elements

Element	Description	Data Input Notes
Task Name	Periodic export task name.	Format: Textbox Range: Maximum length is 40 characters. Valid characters are alphanumeric, minus sign, and spaces between words. The first character must be an alpha character. The last character must be an alpha character or a number. Default: APDE Remote Server Copy
Task Description	Optional periodic export task description.	Format: Textbox Range: Maximum length is 255 characters. Valid characters are alphanumeric, minus sign, underscore, and spaces between words. The first character must be an alpha character. The last character must be an alpha character or a number. Default: None
Remote Server	Name of export server.	Format: Textbox Range: Maximum length is 255 characters. Valid hostname characters are alphanumeric, minus sign, and period. The Hostname must start with an alphanumeric and end with an alphanumeric. The top level domain (TLD) must be alphabetic. **Note:** Must be a valid hostname, IPv4 address, or IPv6 address. Default: None

Element	Description	Data Input Notes
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). 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 a 4096-character string. Valid characters are alphanumeric (a-z, A-Z, and 0-9), dash, underscore, period, and forward slash. If no directory is specified, the username's home directory on the remote server is used. Default: None
Path to rsync on Remote Server	Optional path to the rsync binary on the export server.	Format: Textbox Range: Maximum length is a 4096-character string. Valid characters are alphanumeric (a-z, A-Z, and 0-9), dash, underscore, period, asterisk, and forward slash. **Note:** If no path is specified, the rsync-path option is not used.
Files to Transfer	Path to the files in the file management area on the local server to be transferred to the remote export server.	Format: Text combobox Range: Maximum length is a 4096-character string. Valid characters are alphanumeric (a-z, A-Z, and 0-9), dash, underscore, period, asterisk, and forward slash. Default: None **Note:** Combobox allows for several predefined options which a user can select, or the user can type in a specific path. Path must be a subdirectory of backup/ or export/. If no directory is provided, the default directory will be set to export/*.
Upload Frequency	Frequency at which the export occurs.	Format: Options Range: fifteen minutes, hourly, daily, or weekly Default: weekly **Note:** Depending on what upload frequency is selected, some scheduling choices may become inactive and the buttons or pull-down menus are grayed out.

Element	Description	Data Input Notes
Minute	If The Upload Frequency is Fifteen Minutes or Hourly, this is the minute of each period when the transfer is set to begin. For an Upload Frequency of Fifteen Minutes, transfers occur four times per hour, and this field displays the minute of the first transfer.	Format: Scrolling list Range: 0 to 59 Default: 0 **Note:** The Minute selection is only active if the selected Upload Frequency is either Fifteen Minutes or Hourly.
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 **Note:** The Time of Day selection is only active if the selected Upload Frequency is either Daily or Weekly. Select from 15-minute increments or fill in a specific value.
Day of Week	If Upload Frequency is Weekly, this is the day of the week when exported data files are transferred to the export server.	Format: Options Range: Sunday through Saturday Default: Sunday **Note:** The Day of Week selection is only active if the selected Upload Frequency is Weekly.

Configuring data export jobs

The **Data Export [Insert]** form enables you to configure a single data export job to send files to a remote server. You are allowed to configure up to five jobs per site.

1. From the main menu navigate to **Administration** > **Remote Servers** > **Data Export**.
   The **Data Export** page is presented with a grid displaying any currently configured export servers.
2. Click **Insert**.
3. Enter a **Task Name**.
4. Enter a **Task Description**.
5. Enter a **Remote Server** Name, IPv4, or IPv6 address.
   See *Data Export elements* for details about the **Remote Server** field and other fields that appear on this page.
6. Enter a **Username**.
7. (Optional) Enter the **Directory on Export Server**.

   This is the target directory path on the export server.
8. (Optional) Enter the **Path to Rsync** on the remote 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.

9. Select or enter the **Files to Transfer** path(s).

   This entry defines the path(s) to the files within the File Management Area from which files are exported. A combobox allows for one of several predefined options to be selected, or the user can type in a specific path. Multiple paths may be entered.
10. Select the **Upload Frequency**.
11. If you selected fifteen minutes or hourly for the upload frequency, select the **Minute** for which the transfer is set to begin.

    Note: This is the minute of each period when the transfer is set to begin. For an Upload Frequency of Fifteen Minutes, transfers occur four times per hour, and this field sets the minute of the first transfer in the hour.
12. If you selected daily or weekly for the upload frequency, select the **Time of Day**.
13. If you selected weekly for the upload frequency, select the **Day of the Week**.
14. Click **OK** to apply the changes or **Cancel** to discard the changes.
    The export job configuration is saved and you are returned to the **Data Export** page. A grid is presented reflecting the newly added job.
15. If public keys were manually placed on the remote server, skip to step *Step 17*; otherwise, select the newly added export job by clicking on it and click **Key Exchange**. This button initiates a key exchange between the local OAM server and the data export remote server currently defined in the job. See *Generating a data export keys report*.
16. Enter the password.
    A password must be entered before the exchange can complete. The server attempts to exchange keys with the remote server. After the keys are successfully exchanged, continue with the next step.
17. (Optional) Select the newly updated export job by clicking on it. Click **Test Transfer** to confirm the ability to export to the remote server.
    The user can monitor the progress of the task by selecting the **Tasks** pulldown list in the page control area.

The export job is now configured and active.

Updating data export jobs

The **Data Export [Edit]** form enables you to modify the existing configuration settings of a specific export job.

1. From the main menu navigate to **Administration** > **Remote Servers** > **Data Export**.
   The **Data Export** page is presented with a grid displaying currently configured export jobs.
2. Select the desired export job by left clicking on it and click **Edit**.
3. Make the desired changes. Note that some options are not available to change and the buttons, text boxes, or pull-down menus are grayed out. Some options may become active based on other selections, for example, **Upload Frequency**.
4. Click **OK** to apply the changes or **Cancel** to discard the changes.
   If **OK** was selected, the export job configuration is saved and you are returned to the **Data Export** page.

5. (Optional) Select the newly updated export job by clicking on it. Click **Test Transfer** to confirm the ability to export to the remote server.
   The user can monitor the progress of the task by selecting the **Tasks** drop down list in the page control area.

The export job is now updated and active.

Deleting data export jobs

The **Data Export** page has a button that enables you to delete one or more data export jobs.

1. From the main menu navigate to **Administration** > **Remote Servers** > **Data Export**.
   The **Data Export** page is presented with a grid displaying currently configured export jobs.
2. From the grid click to select the export job you want to delete.
3. Click **Delete** and respond to the confirmation dialogue box that is presented.
4. Click **OK** to delete the export job(s).

Data export transfer now

The **Data Export** page has a button that enables you to initiate an immediate attempt to transfer any data files in the user defined directory to the remote server without having to wait for a scheduled period to arrive. Only a single export job may be selected for each attempt.

1. From the main menu navigate to **Administration** > **Remote Servers** > **Data Export**.
   The **Data Export** page is presented with a grid displaying the currently configured export jobs.
2. From the grid click to select the desired export job. Click **Tranfer Now** to initiate an immediate attempt to transfer the data files and respond to the confirmation dialogue box that is presented.
3. Click **OK** to initiate the transfer.

The file transfer is initiated. The user can monitor the task or simply check the export directory on the remote server for success.

Generating a data export keys report

The **Keys Report** button located on the **Data Export** page generates a report that contains the root public key of the local OAM server in the associated network element. The key 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**.
2. Click **Keys Report**.
   The **Data Export [Report]** page displays the public key of the local OAM server.
3. Click **Print** to print the report, or click **Save** to save the file locally to your client workstation. Click **Back** to return 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 overview

The DNS Configuration page can be accessed by navigating from the main menu to **Administration** > **Remote Servers** > **DNS Configuration**.

The page presents a single row of tabs. Each tab represents a network element and all servers participating in that network element. In addition to the tabs, the page also presents **Insert**, **Edit**, and **Delete** buttons. These buttons are active or inactive based on the presence of (or lack of) an active DNS configuration.

Note: Only one DNS server is allowed to be configured per network element.

Once a DNS configuration has been applied, the page displays the name server and address as well as each of the defined search domains for that name server.

A DNS configuration can be applied globally to the system or to a specific network element. The DNS configuration is considered in **GLOBAL** mode if only a NO configuration exists. Otherwise, it's per-site. Put another way, if a single DNS configuration is only applied to the NO network element and no other tab receives a configuration then the DNS configuration is in **GLOBAL** mode and serves all the network elements. If two or more DNS configurations are applied to the system the configuration is in **SITE** mode. If no DNS configuration is applied then the system is in **UNCONFIGURED** mode. To determine the current mode of the system access the **Info** pull down menu.

Note: Once the system is in **SITE** mode, any network element tab not containing a DNS configuration is excluded from accessing a DNS server. If you want all network elements to have access to a DNS name server while the system is in **SITE** mode then each tab must be configured even if they use the same name server and search domains.

DNS configuration elements

The DNS Configuration [Insert] form provides for configuration of the domain name system. This table describes the elements of the DNS Configuration [Insert] form.

Table 52: DNS Configuration Elements

Element	Description	Data Input Notes
External DNS Name Server		
Name Server	Address of external DNS name server. [Must be a valid ipv4 or ipv6 address]	Format: Valid IPv4 or IPv6 address Range: (IPv4) or colon hex (IPv6)
Domain Search Order		
Search Domain 1	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters

Element	Description	Data Input Notes
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
Search Domain 6	A valid domain name	Format: alphanumeric, hyphen and decimal characters Range: Up to 255 characters
Submit Buttons		
Ok	Submits the information to the server, and if successful, returns to the **DNS Configuration** page.	
Cancel	Returns to the **DNS Configuration** page without submitting any information to the server.	

Adding a DNS Configuration

Use this procedure to add a DNS Configuration:

1. Select **Administration** > **Remote Servers** > **DNS Configuration**.
2. Select the tab representing the desired network element.
3. Click **Insert**.
4. Enter a **Name Server** using a valid ipv4 or ipv6 address.
5. Enter the **Search Domain** in the domain search order. You may add up to six search domain names.
6. Click **OK** 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**.

2. Select the tab representing the desired network element.
3. Click **Edit**.
   DNS **Configuration [Insert]** form appears.
4. Update the information as desired and click **OK** to submit the new information.

The updated DNS configuration is saved and activated.

Deleting a DNS Configuration

Use this procedure to delete a DNS configuration:

Note: Prior to deleting a configuration take note of the DNS configuration mode. Deleting a DNS configuration from the NO network element while the system is in **GLOBAL** mode affects all network elements relying on DNS service.

1. Select **Administration** > **Remote Servers** > **DNS Configuration**.
2. Select the tab representing the desired network element.
3. Click **Delete**.
   A dialogue confirmation box appears. Click **OK** to proceed with the delete action.
4. Confirm that the DNS configuration has been deleted by navigating to the desired network element tab and confirming that the **No DNS configured** message is displayed.

The DNS configuration has been deleted.

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.

Networking

Found under the main menu sub-directory of **Configuration** > **Networking** is a collection of pages which allow the user to configure networks, devices, and routes. Additionally, application services are mapped to networks via the **Services** page.

Networks

The **Networks** page is used to create the networks used for internal, external, and signalling communications. The networks are grouped into logical buckets called network elements. Only after creating these buckets can the networks themselves be defined. One advantage of this architecture is simplified network device configuration and service mapping.

The workflow is to first create the network elements and then define the individual networks inside each element.

Network Elements

A network element is simply a collection of networks. In other words, a container of networks. Any servers belonging to a specific network element uses those networks exclusively to communicate internally and externally. A network element can contain multiple servers but a single server can only belong to one network element.

Using a three-tier DSR system as an example, a typical, regionally diverse, signaling network would have multiple network elements. Let's consider a system deployed across an east region and west region. The network element configuration might look like:

- NO_East
- NO_West
- SO_East
- SO_West
- NO_DR (Disaster Recovery Spare)

CAUTION

Caution: Depending on the application, the workflow and provisioning instruction may differ from the direction provided here. Always follow the provisioning guidelines for your specific application and release.

There are two methods for creating network elements. The first method involves manual entry using the **Networks [Insert network Element]** form. See *Inserting a network element* for more information on this method. The second method is more encompassing and allows the user to simultaneously create the network element and associated networks. See *Uploading a network element configuration file*.

Networks Insert Network Element

This table describes the elements of the**Networks [Insert Network Element]** form.

Table 53: Insert Network Elements Elements

Field	Description	Data Input Notes
Network Element Name	The user-defined name for the network element.	Must be unique. Format: String Range: 1-32 alphanumeric characters and underscore. Must contain at least one alphabetic character and must not start with a digit. Default: n/a A Value is required.

Inserting a network element

This procedure defines the manual process of inserting a network element. To view the procedure that involves the uploading of a network element configuration file see *Uploading a network element configuration file*.

Use this procedure to define and insert a network element:

1. Select **Configuration** > **Networking** > **Networks**.
2. Click **Insert Network Element**.
3. Enter a unique name in the value field for **Network Element Name**.
4. Enter a unique name across the network element table in **Network Element Name**.

   See *Network Insert elements* for value limitations of the **Network Element Name** field.
5. Click **OK** to submit the information and return to the **Networks** page or **Cancel** to discard the changes and return to the **Networks** page.

The network element is added to the topology database tables, and the GUI displays the newly added network element in tab format on the **Networks** page.

Uploading a network element configuration file

This procedure defines the automated process of uploading a network element configuration file to create the network element. To view the procedure that involves the manual process of inserting a network element see *Inserting a network element*.

Note: Depending on the application, the workflow and provisioning instruction may differ from the direction provided here. Because applications differ, the format of the configuration file is not addressed here. Always follow the provisioning guidelines for your specific application and release.

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

1. Select **Configuration** > **Networking** > **Networks**.
2. Click **Browse** to locate the file you want to use to configure a new network element.
   A file upload dialogue box appears allowing you to navigate to and select the target configuration file.
3. Select the target file and click **Open**.

The dialogue box disappears and the target file appears in the text box to the right of the **Browse** button.

4. Click **Upload File**.
The file is uploaded and data validation is performed.

Data validation is performed immediately. If the file is valid, a new network element is created and reflected in a new tab on the **Networks** page. 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** > **Networking** > **Networks**.
2. Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located in the tool bar area to the right or left of the visible tabs.

Deleting a Network Element

Before deleting a network element the user must ensure that no servers are associated with the target network element. Attempting to delete a network element with at least one associated server results in an error message and the target network element is not deleted. If a network element contains networks, but is not associated with any servers, then deleting the network element is successful. The networks contained in the target network element are deleted along with the network element.

Use this procedure to delete a network element after confirming that no servers are associated with it:

1. Select **Configuration** > **Networking** > **Networks**.
2. Locate the target network element tab.

   Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.
3. Click the **x** located on the tab of the target network element.
A delete confirmation message appears.
4. Click **OK** to delete the network element from the database tables.
A status message is presented stating the network element has successfully been deleted. Closing the status message returns you to the **Networks** page.

The network element and related networks are deleted from the databases.

Exporting a network element configuration file

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

1. Select **Configuration** > **Networking** > **Networks**.
2. Select the target network element tab.

Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

3. Click **Export**.
   A file dialogue box appears prompting you to open or save the configuration file. By default the name format of the output file is NE_<yyyymmdd>_<hhmmss>_<zone>.xml. You may change this as needed.

Network Insert elements

This table describes the elements of the Networks Insert form.

Table 54: Networks Insert Elements

Field	Description	Data Input Notes
Network Name	The name of the network.	Must be unique. Format: String Range: 1-31 alphanumeric characters. Must start with a letter. No special characters are allowed. Defaut: n/a A value is required.
Network Type	The type of network in the context of the application.	Format: Pulldown list Range: OAM or Signaling Default: OAM
VLAN ID	The VLAN ID of the Network	Format: Numeric Range: 1-4094 A value is required.
Network Address	The network address of the Network	Format: Valid network address Range: Dotted decimal (IPv4) or colon hex (IPv6) Default: n/a A value is required.
Netmask	Subnetting to apply to servers within the Network	Format: Valid network netmask Range: Prefix length (IPv4 or IPv6) or dotted quad decimal (IPv4) Default: n/a A value is required.

Field	Description	Data Input Notes
Router IP	The IP address of a router on this network. **Note:** If this is a default network, this i used as the gateway address of the default route on servers with interfaces on this network. If customer router monitoring is enabled, this address is the one monitored.	Format: Valid IP address Range: Dotted decimal (IPv4) or colon hex (IPv6) Default: n/a **Note:** A value is not required. Networks without a router IP cannot be used as the default network. The default network selection defaults to No.
Default Network	Whether the network is the default gateway	Format: Option Range: Yes or No
Routed	Whether the network is routed outside its network element. **Note:** The network is automatically assigned to a network element when a server in a network element has an IP from the network assigned is to it.	Format: Option Range: Yes or No **Note:** Select No to allow the same IMI network/IPs to be used at multiple Signaling sites.

Inserting a Network

Use the following procedure for manually inserting a network. Alternatively, you can use the automated process of uploading a network element configuration file to create both the network element and associated networks. See *Uploading a network element configuration file*.

1. Select **Configuration** > **Networking** > **Networks**.
2. Locate and select the target network element tab where you want to create the network.

   Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.
3. Click **Insert**.
4. Enter a **Network Name**.

   For more information about **Network Name**, or any field on this page, see *Network Insert elements*.
5. Select a **Network Type** from the pulldown list.
6. Enter a **VLAN ID**.
7. Enter a **Network Address**.

   This is a network address and not a host IP address.
8. Enter a **Netmask**.
9. Optional: Enter the **Router IP**

   This is used as the gateway address of the default route if yes is chosen in step 10.
10. Choose whether this will be the network with a default gateway.

If yes is chosen, the gateway address entered in step 9 acts as the default route for servers with interfaces on this network.

11. Choose whether this network is routed outside its network element.
12. Click **OK** to submit the information and return to the **Networks** page, or click **Apply** to submit the information and continue entering additional data. Clicking cancel discards your changes and returns you to the **Networks** page.

The new network is added to the target network element.

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 a route or a device to a network, the network would have to be in an unlocked state.

1. Select **Configuration** > **Networking** > **Networks**.
2. Locate and select the network element tab where the network you want to unlock exists.

   Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.
3. Identify the target network and determine the lock status. This can be accomplished by identifying the value of the **Locked** field for your target network. A value of yes indicates the network is currently locked; no indicates the network is not currently locked. Alternatively, you can select the target network and take note of the **Lock/Unlock** button. If the button transitions to **Unlock** then the network is currently locked; if the button transitions to **Lock** then the network is currently unlocked.
4. To unlock a locked network, click **Unlock** and respond to the confirmation dialogue box that is presented. Take note that when unlocking, you also have to confirm your decision using a check box.
   The network is now unlocked.
5. To lock an unlocked network, click **Lock** and respond to the confirmation dialogue box that is presented.
   The network is now locked.

The network is locked or unlocked.

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 serves 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** > **Networking** > **Networks**.
2. Locate and select the network element tab where the network you want to edit exists.

   Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

3. Select the target network and determine the lock status. If the network is currently unlocked proceed to the next step. If the network is locked the **Lock/Unlock** button should be active and reflect **Unlock**. Click **Unlock** and respond to the confirmation dialogue box that is presented.
   The network is now unlocked.
4. Navigate back to the target network elements tab and select the target network again. Click **Edit**.

   If the network cannot be edited it means it is still locked or it is a pre-configured network.
5. 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.
6. Click **OK** to submit the changes and return to the **Networks** page, or click **Apply** to submit the information and continue editing additional data. Clicking cancel discards your changes and returns you to the **Networks** page.
7. Return the target network to the desired lock status.

The network is changed.

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 serves 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** > **Networking** > **Networks**.
2. Locate and select the network element tab where the network you want to delete exists.

   Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.
3. Click to select the network you want to delete. To delete multiple networks, press and hold **Ctrl** and click to select multiple networks.

   If the network cannot be deleted, **Delete** is disabled. To delete multiple networks at one time, all selected networks must be deletable.
4. Click **Delete** and respond to the confirmation dialogue box that is presented.
5. Click **OK** to delete the network.

The network has been removed from the database and no longer appears in the network element tab.

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** > **Networking** > **Networks**.
2. Locate and select the network element tab where the target networks exist.

Network elements are presented in tabular form. If the target network element is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

3. 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**. To generate a report for multiple networks, press and hold **Ctrl** as you click to select specific networks.
4. Click **Print** to print the report, or click **Save** to save the report to a file.

Devices

The **Devices** page is used to configure and manage additional interfaces other than what was configured during the initial installation.

Devices elements

This table describes the elements of the**Devices** page.

Table 55: Devices Elements

Tab/Field	Description
Server	The server host name displayed in tabbed format at the top of the table
Device Name	The name of the device (not user defined)
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 pending) • Deployed (provisioned through the GUI; server update is complete) • Pending (edit or delete update in progress) • Deferred (server cannot be reached for updates) • Error (specific error text is displayed in the Configuration Status field)
Is Locked?	Status of the lock state. The possible states are: • Locked (Not available for edit or delete) • Unlocked (Available for edit or delete)

Viewing a Device

Devices are viewed on per server basis. The use of italics indicates a device that cannot be edited or deleted.

Use this procedure to view devices:

1. Select **Configuration** > **Networking** > **Devices**.
2. Locate and select the desired server tab.

   Servers are presented in tabbed form. If the target server is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

The devices for that selected server are displayed.

Device Insert elements

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

Note: Some fields are dynamic and only appear when specific values are selected. Dynamic fields are noted in the description.

Table 56: Devices General Options

Field	Description	Data Input Notes
Device Type	The type of device. **Note:** A device type of**Ethernet** is system generated and not selectable from this form.	Format: Option Range: Bonding, VLAN, Alias Default: N/A A value is required.
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 A value is required.
MTU Setting	The Maximum Transmission Unit (MTU) setting for the device (bytes per packet) ⚠ CAUTION **Caution:** Changing the MTU setting for an existing interface restarts the interface, which is service affecting.	Format: Numeric Range: 1280-65570 Default: 1500

Field	Description	Data Input Notes
Monitoring Type	The monitoring type to use with a bonding device. **Note:** This field is dynamic and only appears when bonding is selected as the device type.	Format: Radio button Range: MII, ARP Default: MMI A Value is required.
Primary	The preferred primary interface. **Note:** This field is dynamic and only appears when bonding is selected as the device type and a monitoring type choice is selected.	Format: Pulldown list Range: None - all available devices Default: None A value is required.
Monitoring Interval	MII monitoring interval in milliseconds. **Note:** A monitoring type is selected by default (MII).	Format: Numeric Range: A positive integer Default: 100ms A value is required.
Upstream Delay	MII monitoring upstream delay in milliseconds. **Note:** This field is dynamic and only appears when bonding is selected as the device type and MII is selected as the monitoring type.	Format: Numeric Range: A positive integer Default: 200ms A value is required.
Downstream Delay	MII monitoring downstream delay in milliseconds. **Note:** This field is dynamic and only appears when bonding is selected as the device type and MII is selected as the monitoring type.	Format: Numeric Range: A positive integer Default: 200ms A value is required.
ARP Validation	The method to validate the ARP probes and replies. **Note:** This field is dynamic and only appears when bonding is selected as the device type and ARP is selected as the monitoring type.	Format: Pulldown list Range: None, Active, Backup, All Default: None A value is required.
ARP Target IP(s)	Comma-separated ARP target IP address list. **Note:** This field is dynamic and only appears when bonding is selected as the device type and ARP is selected as the monitoring type.	Format: Valid IP addresses Range: Dotted quad decimal (IPv4) or colon hex (IPv6) Default: None Range: Dotted quad decimal (IPv4) or colon hex (IPv6)

Field	Description	Data Input Notes
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. This cannot be changed after the device is created.	Format: Radio buttons Range: Available base devices Default: N/A A Value is required.
IP Interfaces		
Add IP Interface	Presents a row with a single address box and network pulldown list. **Note:** For each row, only one IP Address and network can be specified. To specify additional rows, click**Add IP Interface**.	Format: Button At least one entry is required.
Remove	Removes the device interface IP Address on the selected row **Note:** This is not a delete button. If**Apply** has already been selected, clicking**Remove** does not delete the interface. Deleting an interface that has already been defined takes place from the**Devices** page.	Format: Button
Ok button	Submits the information to the database, and if successful, returns you to the**Devices** page.	Format: Button
Apply button	Submits the information to the database, and if successful, remains on the**Devices [Insert]** form so that you can enter additional data.	Format: Button
Cancel button	Discards the information and returns you to the**Devices** page.	Format: Button

Inserting a Device

The **Devices [Insert]** form uses dynamic options. Depending on the selected value of a field, options may be added or removed from the form. It is important to review and understand the elements associated with this form by reviewing the *Device Insert elements* page.

Note: Devices cannot be created that 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. Additionally, device creation requires that the prerequisite networks are already configured. See *Inserting a Network* for more details.

1. Select **Configuration** > **Networking** > **Devices**.
2. Locate and select the desired server tab.

   Servers are presented in tabbed form. If the target server is not visible in the available screen space, use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

3. Click **Insert**.
4. Select the **Device Type**. If the selected device type is **Bonding**, continue with this step; otherwise skip to *Step 5*.
   a) By default, **Start on Boot** is enabled. Uncheck the check box if you want to disable **Start on Boot**.
   b) Select the **Boot Protocol**.
   c) Enter the **MTU Setting** if a default of 1500 is not desired.
   d) Select the **Monitoring Type**.
   e) Select the **Primary** interface.
   f) Enter the **Monitoring Interval**.
   g) If MII was selected as the monitoring type, enter the **Upstream Delay** in milliseconds; otherwise skip to substep *Substep j*.
   h) Enter the **Downstream Delay** in milliseconds.
   i) Select **Base Devices**. Two must be selected.
   j) If ARP was selected as the monitoring type, enter the **ARP Validation** method.
   k) Enter the **ARP Target IP(s)** using valid comma separated IP addresses.
   l) Skip to step *Step 7* to continue.
5. If the selected device type is **VLAN**, continue with this step; otherwise skip to *Step 6*.
   a) By default, **Start on Boot** is enabled. Uncheck the check box if you want to disable **Start on Boot**.
   b) Select the **Boot Protocol**.
   c) Enter the **MTU Setting** if a default of 1500 is not desired.
   d) Select **Base Device**. Only one can be selected.
   e) Skip to step *Step 7* to continue.
6. If the selected device type is **Alias**, continue with this step; otherwise skip to *Step 7*.
   a) By default, **Start on Boot** is enabled. Uncheck the check box if you want to disable **Start on Boot**.
   b) Select the **Boot Protocol**.
   c) Enter the **MTU Setting** if a default of 1500 is not desired. This is not an option for Alias device.
   d) Select **Base Device**. Only one can be selected.
7. Click **Add IP Interface**.
   A new row is created with a textbox and pulldown menu.
8. Enter an **IP Address** for the device.
9. Select a **Network Name** from the pulldown menu.
10. For each row, only one IP Address and Network Name can be specified. To specify additional interfaces, select **Add IP Interface** and complete steps 8 and 9.
11. When you are finished adding IP addresses, click **OK** to submit the information and return to the **Devices** page, or click **Apply** to submit the information and continue entering additional data. Clicking **Cancel** discards your changes and returns you to the **Devices** page.

Taking ownership of a device

Devices that have a configuration status of **Discovered** are devices that were configured during the initial install or extension process and not added manually. The user has limited abilities to modify these devices. When the need arrises to edit the attributes of these devices, the user must first take ownership of the device.

Prior to taking ownership of a device the user should be familiar with the concept of locked/unlocked networks. Prior to editing or deleting any device that belongs to a locked network, the network must be unlocked. See *Locking and Unlocking a Network* for more information.

Note: Not all devices must belong to a network. For example, primary interfaces with a state of **Discovered** may not belong to a network.

The process of taking ownership of a device and then editing or deleting that device slightly differs depending on whether or not that device currently belongs to a locked network. See *Editing a Device* for more information.

Prior to taking ownership of a discovered device, the device has a configuration status of **Discovered; Locked**. **Edit** and **Delete** are disabled. Immediately after taking ownership of the device, the configuration status temporarily changes to **Configured** and then **Pending**. Within a few minutes the device should transition to its final configuration status of **Deployed**. If the device belonged to a locked network before taking ownership, the status displays as **Deployed; Locked**, otherwise it displays as **Deployed; Unlocked**.

Note: Before taking ownership of a device, generate a device report. The device report serves 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*.

Use the following procedure to take ownership of a device.

1. Select **Configuration** > **Networking** > **Devices**.
2. Locate and select the desired server tab where the target device exists.

   Servers are presented in tabbed form. If the target server is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

   The device data for the selected server appears.
3. Click to select the device you want to take ownership of. Alternately, you can take ownership of multiple devices. Press and hold **Ctrl** and click to select more than one device.

   If one or more selected devices have a configuration status of something other than **Discovered**, the **Take Ownership** button is disabled. To take ownership of multiple devices at one time, all selected devices must have a configuration status of **Discovered**.
4. Click **Take Ownership**.

   The configuration status temporarily displays **Configured**, then **Pending**, and finally **Deployed**.

The devices are now available for editing or deleting. Take note of the lock status. A device cannot be edited or deleted while in the **Locked** state. See *Locking and Unlocking a Network* for details on changing the lock status.

Editing a Device

Devices with a locked status cannot be edited without unlocking the network to which they belong. See *Locking and Unlocking a Network* for more information. Additionally, devices that have a configuration status of discovered cannot be unlocked until you take ownership of the device. See *Taking ownership of a device* for more information. Some discovered devices not belonging to a network are unlocked immediately after taking ownership. Other discovered devices require the extra step of unlocking the network after taking ownership.

Note: Before editing a device, generate a device report. The device report serves 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** > **Networking** > **Devices**.
2. Locate and select the desired server tab.

   Servers are presented in tabbed form. If the target server is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

   The device data for the selected server appears.
3. Click to select a device and click **Edit**.

   If the device cannot be edited, **Edit** is disabled. Confirm the device is in a deployed and unlocked state. If the device can be edited, the **Devices [Edit]** form 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.

   ⚠ CAUTION

   Caution: Changing the MTU setting for an existing interface restarts the interface, which affects service.
5. Click **OK** to submit the information and return to the **Devices** page, or click **Apply** to submit the information and continue entering additional data. Clicking cancel discards your changes and returns you to the **Devices** page.

The device is changed.

Deleting a Device

Devices with a locked status cannot be deleted without unlocking the network to which they belong. See *Locking and Unlocking a Network* for more information. Additionally, devices that have a configuration status of discovered cannot be unlocked until you take ownership of the device. See *Taking ownership of a device* for more information. Some discovered devices not belonging to a network are unlocked immediately after taking ownership. Other discovered devices require the extra step of unlocking the network after taking ownership.

Note: Before deleting a device, generate a device report. The device report serves 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** > **Networking** > **Devices**.
2. Locate and select the desired server tab.

   Servers are presented in tabbed form. If the target server is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

   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.

If the device cannot be deleted, **Delete** is disabled. Confirm the device is in a deployed and unlocked state. To delete multiple devices at one time, all selected devices must be deletable.

4. Click **Delete**.
5. Click **OK**.

Generating a Device Report

A device report can be generated on a single device, multiple devices within the same server, or all devices regardless of server.

1. Select **Configuration** > **Networking** > **Devices**.
2. Locate and select the desired server tab.

   Servers are presented in tabbed form. If the target server is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.

   The device data for the selected server appears.
3. To generate a device report choose on of the following procedures:
   - To generate a report for all devices under the current server tab, click **Report**.
   - To generate a report for a single device, click to select the device and click **Report**. Alternatively, you can select multiple devices. To generate a report for multiple devices, press and hold **Ctrl** as you click to select specific devices.
   - To generate a report for all devices regardless of server, click **Report All**.

   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 traffic. You can specify routes for the entire network, specific servers, or specific server groups.

Routes elements

This table describes the elements of the **Routes** page.

Table 57: Routes Elements

Tab/Field	Description
Server Group/Server	Server groups are presented in tabs at the top of the main work area. Selecting a specific server group reveals the individual servers of that group. Alternatively, selecting the **Entire Network** tab reveals all the servers defined in the system. After selecting a specific server group, the user has the option of selecting a specific server or selecting **Entire Server Group** to reveal the existing routes.
Route Type	The type of route. Possible types are: • Net (A route that serves a specific network)

Tab/Field	Description
	• default (The default route for that server) • Host (A route to a specific target host)
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
Device Name	The network device through which traffic is being routed. **Note:** This is not available on the **Entire Server Group** tab.
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 scoped routes.
Route Scope	The scope of the route. Possible types are server and server group. **Note:** This column is only present for server sub-tabs.
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 pending) • Deployed (provisioned through the GUI; server update is complete) • Pending (edit or delete update in progress) • Deferred (server cannot be reached for updates) • Error (specific error text is displayed in the Configuration Status field)
Is Locked?	Status of the lock state. The possible states are: • Locked (Not available for edit or delete) • Unlocked (Available for edit or delete

Viewing a Route

Use this procedure to view current routes.

1. Select **Configuration** > **Networking** > **Routes**.
2. Click to select a server group and/or server using the tabs at the top of the main work area.

   If the target server group or server is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs. Server groups are presented in tabs at the top of the main work area. Selecting a specific server group reveals the individual servers of that group. Alternatively, selecting the **Entire Network** tab reveals all the servers defined in the system. After selecting a specific server group, the user has the option of selecting a specific server or selecting **Entire Server Group** to reveal the server group scoped routes.

   The route data for the selected server or server group appears.

Routes Insert elements

This table describes the elements of the **Routes [Insert]** form. 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: Option Range: Net, Default, Host Default: N/A A value is required. **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 Default: N/A A value is required.
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) Default: N/A
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 decimal (IPv4) format Default: N/A
Gateway IP	The IP Address of the gateway for the route	Format: Valid IP address Range: Dotted quad decimal (IPv4) or colon hex (IPv6) Default: N/A A value is required.

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** > **Networking** > **Routes**.
2. Using the tabs, navigate to the target server group or server.
3. Click **Insert**.
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 Route page, or click **Apply** to submit the information and continue entering additional data.

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 serves 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** > **Networking** > **Routes**.
2. Using the tabs, navigate to the target server group or server.
   The route data for the selected server or server group appears.
3. Click to select a route and click **Edit**.

   If the route cannot be edited, **Edit** is disabled. If the route can be edited, the **Routes [Edit]** form 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 **Routes** page, or click **Apply** to submit the information and continue editing additional data.

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 serves 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** > **Networking** > **Routes**.
2. Using the tabs, navigate to the target server group or server.
   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.

   If the route cannot be deleted, **Delete** is disabled. 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

Use this procedure to generate a route report.

1. Select **Configuration** > **Networking** > **Routes**.
2. Using the tabs, navigate to the target server group or server.
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 feature allows for flexible network deployment by allowing you to map an application service to a specific network. Additionally, this feature allows for the differentiation of intra- and inter-networks on a per service basis. This means that traffic from different services can be segmented, which allows for service specific-networks and routes. This is predicated on the creation of network elements, networks, and routes to support the segmentation of service traffic.

Geo-redundant (spare) nodes and dual-path monitoring is special code on the node at the spare site that continually monitors the availability of the database instances at the primary site in order to determine if an automatic fail-over should occur due to loss of the active site servers. In the event of a network outage, it is possible that if the system is monitoring a single network path only, and intra- and inter-networks are differentiated, and an erroneous condition might occur where both sites try to assume activity. Inherent dual-path monitoring protects against this scenario.

The core services are:

- OAM
- Replication
- Signaling
- HA_Secondary
- HA_MP_Secondary
- Replication_MP

For example, segregation of replication traffic might occur for inter-network (WAN) traffic only. Prerequisite configuration work would have included the creation of at least one LAN network and two WAN networks along with the related routes. For the purposed of this example, these could be named LAN1, WAN1, and WAN2. The services mapping might look similar to the following:

Name	Intra-NE Network	Inter-NE Network
OAM	Unspecified	Unspecified
Replication	LAN1	WAN1
Signaling	Unspecified	Unspecified
HA_Secondary	Unspecified	Unspecified
HA_MP_Secondary	Unspecified	Unspecified
Replication_MP	LAN1	WAN2

Note: Services might vary depending on the application. For example, DSR adds a service known as ComAgent to the existing core services. Additionally, workflow and provisioning instruction might differ from the direction provided here. Always follow the provisioning guidelines for your specific application and release.

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** > **Networking** > **Services**.
2. Click **Edit**.
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. Click **OK** to submit the information and return to the **Services** page, or click **Apply** to submit the information and remain in the **Services [Edit]** form. Clicking cancel discards your changes and returns you to the **Services** page.

Generating a Services Report

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

Use this procedure to generate a service reports:

1. Select **Configuration** > **Networking** > **Services**.

2. Click **Report**.
3. Click **Print** to print the report, or click **Save** to save a text file of the report. Clicking **Back** returns you 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 59: 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

Element	Description	Data Input Notes
		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 displayed for each network in the network element.	Format: pulldown list
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

Element	Description	Data Input Notes
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.

Element	Description
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.

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**.
2. Click to select the server you want to edit.
3. Click **Edit**.
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 NOAM, SOAM, and MP servers. The purpose of this feature is to define database relationships to support the high availability architecture. This relates to replication, availability, status, and reporting at the server level.

From the **Server Groups** page users can create new groups, edit groups, delete groups, and generate reports that contain server group data. Servers can be added or removed from existing groups using the edit function.

The **Server Groups** page can be accessed from the main menu by navigating to **Configuration** > **Server Groups**. The page displays a grid reflecting all currently configured server groups. A description of the elements displayed in the grid can be found in *Server Groups Edit Elements*.

Note: Depending on the application configuration, the preferred HA role preference, or 'NE HA Pref', may not be displayed.

Server Groups Insert Elements

This table describes the elements of the **Server Groups [Insert]** form.

Table 60: Server Groups Insert Elements

Element	Description	Data Input Notes
Server Group Name	A unique name used to label the server group.	Format: String Range: 1-32 characters. Alphanumeric and underscore are allowed. A minimum of one alphabetic character is required and must not start with a digit. Default: N/A A Value is required.

Element	Description	Data Input Notes
Level	The level of the servers belonging to this group.	Format: Pulldown menu Range: Levels A, B, or C **Note:** Level **A** groups contain NOAMP and Query servers. Level **B** groups are optional and contain SOAM servers. Level **C** groups contain MP servers. A Value is required.
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	Specifies the number of TCP connections that are used by replication over any WAN connection associated with this Server Group.	Format: Numeric
		Range = An integer between 1 and 8
		Default = 1

Inserting a Server Group

Use this procedure to configure a server group:

Note: Servers are not added at this time. Only after the SG is created can servers be added using the edit function.

1. From the main menu select **Configuration** > **Server Groups**.
2. Click **Insert**.
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. Clicking **Cancel** discards all changes and returns return you to the server groups page.

Server Groups Edit Elements

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

Table 61: Server Groups Edit Elements

Element	Description	Data Input Notes
Server Group Name	A unique name used to label the server group.	Format: String Range: 1-32 characters. Alphanumeric and underscore are allowed. A minimum of one alphabetic character is required and must not start with a digit. Default: N/A A Value is required.
Level	The level of the servers belonging to this group.	This field cannot be edited. Format: Pulldown menu Range: Levels A, B, or C Note: Level A groups contain NOAMP and Query servers. Level B groups are optional and contain SOAM servers. Level C groups contain MP servers. A Value is required.
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.	This field cannot be edited. Format: Pulldown menu Range: Functions supported by the system

WAN Replication Connection Count	Specifies the number of TCP connections that are used by replication over any WAN connection associated with this Server Group.	Format: Numeric
		Range = An integer between 1 and 8
		Default = 1

Prefer Network Element as spare	The Preferred HA Role Setting for the NE.	Format: Checkbox

Element	Description	Data Input Notes
	When marked as a preferred spare, the network element only assumes an active or standby role if all the other network elements are unavailable. This allows the user to isolate a dedicated disaster recovery element from normal operations. **Note:** Depending on the application configuration, this selection may not be available.	
Server	The name of a server available for inclusion in the server group.	Automatically populated based on servers available for inclusion.
SG Inclusion	When checked, the server is included in the server group.	Checkbox
Preferred HA Role	The Preferred HA Role Setting for the server. 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. This allows the user to isolate a dedicated disaster recovery node from normal operations.	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. Additionally, the edit form presents new fields and choices not present when initially creating the server group. For details regarding specific edit topics, select the appropriate link to display that information.

- For adding a server, see *Adding a server to a server group*.
- For deleting a server, see *Deleting a server from a server group*.
- For assigning a VIP to the server group, see *Assigning a VIP to a server group*.
- For removing a VIP from the server group, see *Removing a VIP from a server group*.

Use this procedure to edit a server group:

1. From the main menu select **Configuration** > **Server Groups**.
2. From the grid, click to select the server group you want to edit.
3. Click **Edit**.
4. Edit the values you want to change.

   Fields that cannot be edited are 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. Clicking **Cancel** discards all changes and returns return you to the **Server Groups** page.

Adding a server to a server group

Only after a server group is created canservers can be added. Use this procedure to add a server to a server group:

1. From the main menu select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
   The **Servers Groups [Edit]** form 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 is included in the server group.
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. Clicking **Cancel** discards all changes and returns return you to the **Server Groups** page.

Deleting a server from a server group

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

1. From the main menu select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
4. To delete a server from the server group, de-select the checkbox for **SG Inclusion**. When unchecked, the server is not included in the server group.
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. Clicking **Cancel** discards all changes and returns return you 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. From the main menu select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.

3. Click **Edit**.
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. Clicking **Cancel** discards all changes and returns return you to the **Server Groups** page.

Removing a VIP from a server group

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

1. From the main menu select **Configuration** > **Server Groups**.
2. From the table, click to select the server group you want to edit.
3. Click **Edit**.
4. Click **Remove** next to the VIP address you want to remove from the server group.
   The VIP address is removed from the server group.
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. Clicking **Cancel** discards all changes and returns return you to the **Server Groups** page.

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. From the main menu 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 is not deleted, and you are returned to the **Server Groups** page.

Generating a Server Group Report

Use this procedure to generate a server group report:

Note: Depending on the application configuration, the 'NE HA Pref', or network element high availability preference, may not be displayed.

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**.
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 62: 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 Default: N/A
Resource Domain Profile	The profile associated with the resource domain.	Format: Pulldown list Range: Policy Binding, Policy Session, and Policy and Charging DRA
Server Groups	The server groups associated with the resource domain	Format: Checkbox Range: MPSG, NOSG< SBRSG, SBSG2, SOSG

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.

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

Places are used 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 63: 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 of a place group	Format: Pulldown menu **Note:** This field is not used for PCA configuration. The only option is None.
Place Type	The place type.	Format: Pulldown menu Range: Site (default option).
Servers	List of the available servers in the NO or SO	Format: Checkbox **Note:** Select all of the DA-MP and SBR servers that are physically located at this Site Place.

Inserting a Place

Use this procedure to configure a place:

1. Select **Configuration** > **Places**.
2. Click **Insert**.
3. Enter the **Place Name.**
4. Select a **Parent** from the pulldown menu.

   Note: A Parent Place is not required for PCA Places and can be set as **None**.
5. Select a **Place Type** from the pulldown menu.
6. Select all of the available DA-MP and SBR **Servers** that are physically located at this Site Place.
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. Before deleting, disassociate any servers.
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. For PCA, Place Associations are used to identify all sites that require access to the Policy DRA binding database, and to identify sites that share a PCA session database.

Place Association Insert Elements

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

Table 64: 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 Insert Elements*.
4. Optionally, 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 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: Use the Differentiated Services Code Point (DSC) pages to configure the priority value of outbound traffic. The router receiving the traffic will use the configured value to prioritize the traffic before sending to the intended destination. The priority value can be applied to a network interface or to a network port of the target. For either case, both TCP and SCTP protocols are supported.

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.

The appearance of the Interface DSCP can vary, and it includes an **Entire Network** tab (when a server group is selected), as well as other server tabs for the selected server group.

Table 65: Interface DSCP Elements

Tab/Field	Description	Data Input Notes
Interface/Server	Server groups are presented in tabs at the top of the main work area. Selecting a specific server group reveals the individual servers of that group. Alternatively, selecting the **Entire Network** tab reveals all the servers defined in the system. After selecting a specific server group, the user has the option of selecting a specific server or selecting **Entire Server Group** to reveal the existing routes.	Visible only for the view page.
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 (View page only)	The DSCP interface details.	This informational field lists the scope and 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. Remain on the tab for Entire Network or select a server group tab.
3. Select a server sub-tab for the interface, or alternatively if a server group tab is selected and the interface is for all servers in the server group select the Entire Server Group sub-tab
4. Click **Insert**.
5. Select the **Interface** from the pulldown listing of available server interfaces.
6. Enter a valid **DSCP** value. A valid value is an integer between 0 and 63, inclusive.
7. Select **TCP or SCTP protocol** from the pulldown list.
8. 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. Remain on the tab for Entire Network or select a server group tab.
3. Select a server sub-tab for the interface, or alternatively if a server group tab is selected and the interface is for all servers in the server group select the Entire Server Group sub-tab
4. Click **Delete**.
   A confirmation box appears.
5. 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. Select a server tab or **Entire Network**.
3. Click **Report** to generate a DSCP report. This button generates a report for all the interfaces on the selected server or **Entire Server Group** sub-tab if no rows are selected. If one or more rows are selected, the report only contains the information on the selected rows..
4. Click **Print** to print the report.
5. Click **Save** to save the report to a file.
6. Click **Back** to return to the **Configuration** > **DSCP** > **Interface DSCP** grid.

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.

The appearance of the Interface DSCP can vary, and it includes an **Entire Network** tab (when a server group is selected), as well as other server tabs for the selected server group.

Table 66: Port DSCP Insert Elements

Tab/Field	Description	Data Input Notes
Port/Server	Server groups are presented in tabs at the top of the main work area. Selecting a specific server group reveals the individual servers of that group. Alternatively, selecting the **Entire Network** tab	Visible only for the view page.

Tab/Field	Description	Data Input Notes
	reveals all the servers defined in the system. After selecting a specific server group, the user has the option of selecting a specific server or selecting **Entire Server Group** to reveal the existing ports.	
Port (Insert page only)	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 (View page only)	The DSCP port details.	This informational field lists the scope and 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. Remain on the tab for Entire Network or select a server group (but not a specific server for the interface).
3. Select the server for the interface, or alternatively if a server group is selected, create the interface on all servers in the server group by selecting the Entire Server Group tab.
4. Click **Insert**.
5. Enter a valid **Port** value. A valid value is an integer between 1 and 65535, inclusive.
6. Enter a valid **DSCP** value. A valid value is an integer between 0 and 63, inclusive.
7. Select **TCP or SCTP protocol** from the pulldown list.
8. 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 server or server group containing the interface, alternatively select the **Entire Network** tab.
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.
5. Click **Back** to return to the **Configuration** > **DSCP** > **Port DSCP** grid.

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.

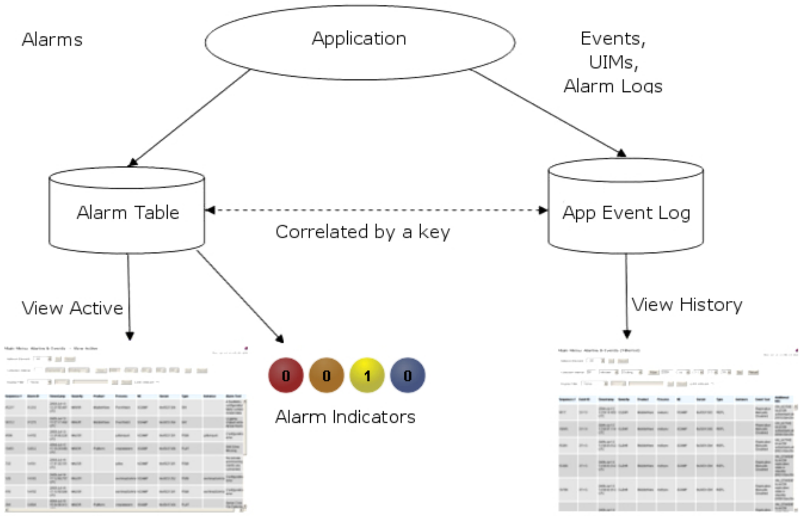
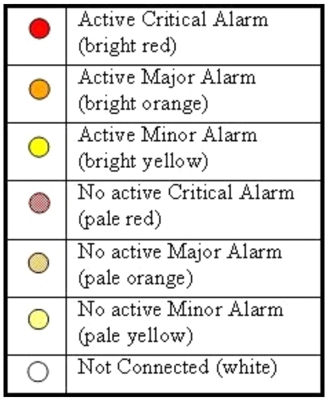


Figure 13: Flow of Alarms

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:

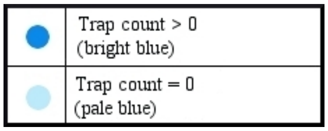
- Record events that represent alarmed conditions
- Record events for later browsing
- Implement an event interface for generating SNMP traps

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.



●	Active Critical Alarm (bright red)
●	Active Major Alarm (bright orange)
●	Active Minor Alarm (bright yellow)
●	No active Critical Alarm (pale red)
●	No active Major Alarm (pale orange)
●	No active Minor Alarm (pale yellow)
○	Not Connected (white)

Figure 14: Alarm Indicators Legend



●	Trap count > 0 (bright blue)
●	Trap count = 0 (pale blue)

Figure 15: 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 67: 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 68: 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 69: 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]** form.

Table 70: Schedule Active Alarm Data Export Elements

Element	Description	Data Input Notes
Export Frequency	Frequency at which the export occurs	Format: Option Range: Once, Fifteen Minutes, Hourly, Daily, or Weekly Default: Once **Note:** Depending on what upload frequency is selected, some scheduling choices may become inactive and the buttons or pull-down menus are grayed out. Note that the Fifteen Minute, Hourly, Daily and Weekly scheduling options are only available when provisioning is enabled.
Task Name	Name of the scheduled task.	Format: Textbox Range: Maximum length is 40 characters. Valid characters are alphanumeric, minus sign, and spaces between words. The first character must be an alpha character. The last character must not be a minus sign. Default: APDE Alarm Export. The default value can only be used once. For scheduled exports, the frequency is not Once, because the name must be unique. **Note:** This field is not active if the selected export frequency is once.
Description	Optional description of the scheduled task	Format: Textbox Range: Maximum length is 255 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign

Element	Description	Data Input Notes
		(-). Description must begin with an alphanumeric character. **Note:** This field is not active if the selected export frequency is once.
Filename Prefix	Optional export filename prefix. The extension to pre-pend the generated export file name.	Format: Textbox Range: Maximum length is 8 characters; alphanumeric (a-z, A-Z, and 0-9).
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 **Note:** This field is not active if the selected export frequency is Once, Daily, or Weekly. This field is only active if the selected export frequency is Fifteen Minutes or Hourly.
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM **Note:** This field is not active if the selected export frequency is Once, Fifteen Minutes, or Hourly. This field is only active if the selected export frequency is Daily or Weekly.
Day of Week	Day of week on which the export occurs	Format: Option Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday **Note:** This field is enabled only if Weekly is selected. Default: Sunday

Exporting active alarms

You can initiate a one-time export task of active alarm data or schedule periodic exports from the **Alarms and Events** > **View Active** page. If filtering has been applied in the **View Active** page, only filtered data is exported.

For each export task, 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 remote server data export feature. For more information about using remote server data export, see *Data Export*.

Use this procedure to export active alarms to a file, or schedule a periodic data export task of this data.

1. Select **Alarms & Events** > **View Active**.

   The **View Active** page appears.
2. Locate and select the server group tab that contains the alarms of interest.

   Server groups are presented in tabular form. If the target server group is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.
3. Click **Export**.

   The View Active [Export] form appears.
4. Choose the **Export Frequency**. Based on this selection other fields may become active or inactive.
5. Enter a **Task Name**.

   This field is not active if the selected export frequency is once. For more information about **Task Name**, or any field on this page, see *Active alarms data export elements*.
6. Optionally, enter a **Description**.

   This field is not active if the selected export frequency is once.
7. Optionally, enter a **Filename Prefix**.

   The filename prefix will be pre-pended to the generated export file name for quick identification.
8. Select the **Minute** if **Export Frequency** is fifteen minutes or hourly.

   If the selected export frequency is fifteen minutes or hourly, this is the minute of each period when the transfer is set to begin. For an export frequency of fifteen minutes, transfers occur four times per hour, and this field displays the minute of the first transfer of the hour.
9. Select the **Time of Day** if **Export Frequency** is daily or weekly.

   This field is not active if the selected export frequency is once, fifteen minutes, or hourly.
10. Select the **Day of Week** if **Export Frequency** is weekly.

    This field is not active if the selected export frequency is once, fifteen minutes, hourly, or daily.
11. Click **OK** to initiate the active alarms export task or **Cancel** to discard the changes and return to the **View Active** page.

The data export task is initiated or scheduled.

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** > **Scheduled Tasks**. For more information see:

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

Note: You cannot edit or delete those types of scheduled tasks from **Status & Manage** > **Tasks** > **Scheduled Tasks**.

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 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 71: 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** form.

Table 72: Schedule Event Data Export Elements

Element	Description	Data Input Notes
Export Frequency	Frequency at which the export occurs	Format: Option Range: Once, Fifteen Minutes, Hourly, Daily, or Weekly Default: Once **Note:** Depending on what upload frequency is selected, some scheduling choices may become inactive and the buttons or pull-down menus are grayed out. Note that the Fifteen Minute, Hourly, Daily and Weekly scheduling options are only available when provisioning is enabled.
Task Name	Name of the scheduled task.	Format: Textbox Range: Maximum length is 40 characters. Valid characters are alphanumeric, minus sign, and spaces between words. The first character must be an alpha character. The last character must not be a minus sign. A value is required. **Note:** This field is not active if the selected export frequency is once.

Element	Description	Data Input Notes
Description	Optional description of the scheduled task	Format: Textbox Range: Maximum length is 255 characters; alphanumeric (a-z, A-Z, and 0-9) and minus sign (-). The first character must be alphanumeric. The last character must be a minus sign (-). **Note:** This field is not active if the selected export frequency is once.
Filename Prefix	Optional export filename prefix. The extension to pre-pend the generated export file name.	Format: Textbox Range: Maximum length is 8 characters; alphanumeric (a-z, A-Z, and 0-9).
Minute	If Export Frequency is fifteen minutes, transfers occur four times per hour, and this field displays the minute of the first transfer.	Format: Scrolling list Range: 0 to 59 Default: 0 **Note:** This field is not active if the selected export frequency is Once, Daily, or Weekly. This field is only active if the selected export frequency is Fifteen Minutes and Hourly.
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM **Note:** This field is not active if the selected export frequency is Once, Fifteen Minutes, or Hourly. This field is only active if the selected export frequency is Daily or Weekly.
Day of Week	Day of week on which the export occurs	Format: Option Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday **Note:** This field is enabled only if Weekly is selected. Default: Sunday

Exporting alarm and event history

You can initiate a one-time export task of alarm history data or schedule periodic exports from the **Alarms and Events** > **View History** page. If filtering has been applied in the **View History** page, only filtered data is exported.

For each export task, 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 remote server data export feature. For more information about using remote server data export, see *Data Export*.

Use this procedure to export alarm and event history to a file, or schedule a periodic data export task of this data.

1. Select **Alarms & Events** > **View History**.

   The **View History** page appears.
2. Specify the desired filter criteria and click **Go**. The **Collection Interval** is required. The alarm and event history files are displayed according to the specified criteria.
3. Click **Export**.

   The **View History [Export]** form appears.
4. Choose the **Export Frequency**. Based on this selection other fields may become active or inactive.
5. Enter a **Task Name**.

   This field is not active if the selected export frequency is once. For more information about **Task Name**, or any field on this page, see *Historical events data export elements*.
6. Optionally, enter a **Description**.

   This field is not active if the selected export frequency is once.
7. Optionally, enter a **Filename Prefix**.

   The filename prefix will be pre-pended to the generated export file name for quick identification.
8. Select the **Minute** if **Export Frequency** is fifteen minutes or hourly.

   If the selected export frequency is fifteen minutes or hourly, this is the minute of each period when the transfer is set to begin. For an export frequency of fifteen minutes, transfers occur four times per hour, and this field displays the minute of the first transfer.
9. Select the **Time of Day** if **Export Frequency** is daily or weekly.

   This field is not active if the selected export frequency is once, fifteen minutes, or hourly.
10. Select the **Day of Week** if **Export Frequency** is weekly.

    This field is not active if the selected export frequency is once, fifteen minutes, hourly, or daily.
11. Click **OK** to initiate the export task or **Cancel** to discard the changes and return to the **View History** page.

The data export task is initiated or scheduled.

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:

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

Note: You cannot edit or delete those types of scheduled tasks from **Status & Manage** > **Tasks** > **Scheduled Tasks**.

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 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 73: 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.

Element	Description
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	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.
Acknowledge	
Unacknowledge All	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.
Unacknowledge	
Report All	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.
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 74: View Trap Log Report Elements

Element	Description
acked	Indicates whether the trap has been acknowledged. 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 75: 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]** form.

Table 76: Schedule Security Log Data Export Elements

Element	Description	Data Input Notes
Export Frequency	Frequency at which the export occurs	Format: Option Range: Once, Fifteen Minutes, Hourly, Daily, or Weekly Default: Once **Note:** Depending on what upload frequency is selected, some scheduling choices may become inactive and the buttons or pull-down menus are grayed out. Note that the Fifteen Minute, Hourly, Daily and Weekly scheduling options are only available when provisioning is enabled.
Task Name	Name of the scheduled task.	Format: Textbox Range: Maximum length is 40 characters. Valid characters are alphanumeric, minus sign, and spaces between words. The first character must be an alpha character. The last character must not be a minus sign. A value is required. **Note:** This field is not active if the selected export frequency is once.
Description	Optional 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. **Note:** This field is not active if the selected export frequency is once.
Filename Prefix	Optional export filename prefix. The extension to pre-pend the generated export file name.	Format: Textbox Range: Maximum length is 8 characters; alphanumeric (a-z, A-Z, and 0-9).
Minute	If hourly or fifteen minutes is selected for Upload Frequency, this is the minute of each hour when the data is	Format: Scrolling list Range: 0 to 59 Default: 0

Element	Description	Data Input Notes
	written to the export directory.	**Note:** This field is not active if the selected export frequency is Once, Daily, or Weekly. This field is only active if the selected export frequency is Fifteen Minutes and Hourly.
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM **Note:** This field is not active if the selected export frequency is Once, Fifteen Minutes, or Hourly. This field is only active if the selected export frequency is Daily or Weekly.
Day of Week	Day of week on which the export occurs	Format: Option Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday **Note:** This field is enabled only if Weekly is selected. Default: Sunday

Exporting security log files

You can initiate a one-time export task of security log data or schedule periodic exports from the **Security Log** > **View History** page. If filtering has been applied in the **View History** page, only filtered data is exported.

For each export task, 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 remote server data export feature. For more information about using remote server data export, see *Data Export*.

Use this procedure to export seculogs to a file, or schedule a periodic data export task of this data.

1. From the main menu select **Security Log** > **View History**.
   The **View History** page is presented.
2. Specify the desired filter criteria and click **Go**. The **Collection Interval** is required.
   The security log files are displayed according to the specified criteria.
3. Click **Export**.

   The **View History [Export]** form appears.
4. Choose the **Export Frequency**. Based on this selection other fields may become active or inactive.
5. Enter a **Task Name**.

   This field is not active if the selected export frequency is once. For more information about **Task Name**, or any field on this page, see *Security log data export elements*.

6. Optionally, enter a **Description**.

   This field is not active if the selected export frequency is once.
7. Optionally, enter a **Filename Prefix**.

   The filename prefix will be pre-pended to the generated export file name for quick identification.
8. Select the **Minute** if **Export Frequency** is fifteen minutes or hourly.

   If the selected export frequency is fifteen minutes or hourly, this is the minute of each period when the transfer is set to begin. For an export frequency of fifteen minutes, transfers occur four times per hour, and this field displays the minute of the first transfer.
9. Select the **Time of Day** if **Export Frequency** is daily or weekly.

   This field is not active if the selected export frequency is once, fifteen minutes, or hourly.
10. Select the **Day of Week** if **Export Frequency** is weekly.

    This field is not active if the selected export frequency is once, fifteen minutes, hourly, or daily.
11. Click **OK** to initiate the export task or **Cancel** to discard the changes and return to the **View History** page.

The data export task is initiated or scheduled.

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:

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

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 77: 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. A network is a collection of servers that share networking configuration, regardless of physical location or replication relationships.
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 78: 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 79: 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 80: 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 81: Database Status vs Reporting Status

	Reporting Status Equivalent			
Database Status	Maintenance in Progress	Maintenance NOT in Progress	Priority	Color
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 82: HA Status vs Reporting Status

	Reporting Status Equivalent			
HA Status	Forced Standby	NOT Forced Standby	Priority	Color
Unknown	Man	Unk	1 (highest)	Red
Offline	Man	Err	Err	2

	Reporting Status Equivalent			
HA Status	Forced Standby	NOT Forced Standby	Priority	Color
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 83: Process Status vs Reporting Status

	Reporting Status Equivalent			
Process Status	Application Disabled	Application Enabled	Priority	Color
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 84: 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 85: 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.

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 86: Database Status Elements

Element	Description
Network Element	The name of the Network Element to which the server belongs.
Server	Name of the Server.

Element	Description
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. • 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:

Element	Description
	• 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 87: 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

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

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

This section provides general information about KPIs, the **Status & Manage** > **KPIs** page, and how to view, export, and graph KPIs. Be aware that core KPI functionality is described here. Applications expand on this functionality based on topology and features. Always refer to the documentation for your specific application and release.

KPI Overview

Key Performance Indicators (KPIs) can be accessed from the **Status & Manage** > **KPIs** page. KPIs represent point-in-time values monitoring various aspects of system performance. There are two types of KPIs, scalar and arrayed, that are used when the monitored element is either distinct or when the monitored element is repeated. For example, the overall CPU utilization for a system can be monitored as a scalar KPI, and the per core CPU utilization can be monitored as an arrayed KPI (where each array element represents the utilization for a CPU core.)

Two important filter concepts in this section are **Scope** and **Group**. These options can be selected from the **KPI Filter** drawer.

A scope is a collection of servers in a given topology. The scope presented in the first tab is referred to as the "Entire Network" scope. A sub-scope can be selected from the filter using one of the configurable containers:

- Network Element
- Server Group
- Resource Domain
- Place

- Place Associations

Note: Scope is limited to only one selection. Multiple scope selections from the filter are prohibited.

Statistics are calculated across the selected scope. For example, when viewing CPU utilization with a selected scope of **Entire-Network** and a group of **Non Arrayed**, the CPU average statistic displayed is for all CPUs in the topology.

A group is a collection of KPIs. For example, Server, displays various system data related to a server. A group is named, and may consist of any mix of single (scalar) or arrayed KPIs. For presentation, groups are automatically partitioned into sub-groups where all of the scalar KPIs are grouped in the "Non Arrayed" sub-group, and each arrayed KPI is grouped into its own sub-group. Applications, topology, and features dictate what named groups are available to the user.

Smooth data presentation is a technique used to provide less erratic updates to the data. This process uses a form a data averaging as opposed to real time data and provides the user with a better overview of what resources are being used.

Exporting of KPIs uses the Automated Performance Data Export (APDE) framework. The export options can be accessed by opening the **KPI APDE Export** drawer. Export tasks can be monitored by opening the **KPI APDE Tasks** drawer. See *Exporting KPIs* for more information on the exporting of KPIs. See *Files* for more information on the APDE format.

Graphing options can be accessed by opening the **KPI Graph** drawer. See *Graphing KPIs* for more on the KPI graphing feature.

KPI work area layout

The KPIs page can be accessed by navigating from the main menu to **Status & Manage** > **KPIs**. Notice the title at the top of the work area. Like other pages, the title presents the ordered list of navigation steps taken to reach the current page. The title also reflects the selected group whose information is being displayed in the main work area. An example of this would be:

Main Menu: Status & Manage > **KPIs [Group: 'Server']**

In this case the default group of 'Server' is presented in the title bar. This changes as different groups are selected from the filter function.

Unlike some of the other pages viewed in the OAM GUI, the KPIs page uses the concept of drawers. These are similar in function to the **Filter**, **Info**, and **Tasks** pulldown menus found on other pages but are located (docked) on the right side of the work area. When selected, they open horizontally presenting the options available.

Under the title bar are two levels of tabs. The top level of tabs present a scope roll-up and subsequent tabs in that row present sub-scoped servers. By default, or when no scope is selected, the view presents a global scope. In this case the first tab is labeled **Entire-Network** and subsequent tabs reflect individual servers. This varies depending on the tier being served by the GUI. Using DSR as an example, the System OAM presents different servers than the Network OAM in the same topology.

The second level of tabs present named groups of arrays with the exception of the first tab. The first tab presents the non-arrayed or scalar KPIs. The subsequent tabs present compatible arrays based on the selected scope.

Note: The named groups of arrays vary depending on application and features. Refer to documentation specific to your application and release.

KPIs elements

KPI elements vary based on the context of the information being displayed and selected scope. Statistical data is always presented using the smooth data presentation technique. See *KPI Overview*. Depending on the application, arrayed KPI names may be pulled from a mapping table providing a proper name. Alternatively, the KPI name may be a simple index and the meaning can be inferred from the context of the group. For example, a multi-core CPU KPI presenting the utilization of each core named 0,1,2,3.

Table 88: KPIs Statistical Elements

KPIs Status Element	Description
Name	The KPI name (or index if this is an arrayed KPI without a mapping table)
Average	Average value of the KPI name within the selected scope.
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.
Sum	Summary of all values of the KPI name within the selected scope.
Description	Description of the KPI name.

Table 89: KPIs Value Elements

KPIs Status Element	Description
Name	The KPI name (or index if this is an arrayed KPI without a mapping table)
Value	Average value of the KPI name within the selected scope.
Description	Description of the KPI name.

Viewing KPIs

Use this procedure to filter and view KPI data.

By default, the initial page display presents KPI data with a scope of **Entire-Network** and a group of **Non Arrayed**. From this filter set, the work area displays server statistics based on all the servers in this topology. Use this procedure to apply a different filter set and view the corresponding KPI data.

1. From the main menu select **Status & Manage** > **KPIs**.

   To isolate the statistics of specific server on the **Status and Manage** > **KPIs [Group: 'Server']** page, navigate the tabs in the row containing **Scope** selection tabs. If the target server is not visible in the available screen space use the scroll right/left buttons located to the right or left of the visible tabs in the row containing scope selection tabs.

2. To apply a different filter set select the **KPI Filter** drawer located to the right of the main work area. The filter icon is represented by a funnel. The drawer slides open and presents pull-down

selections for both **Group** and **Scope**. In addition to the pull-down menus two action buttons are presented; **Go** and **Reset**. Select the desired **Group** and **Scope** and click **Go**.

The drawer is closed and the KPI data are presented in the work area. Navigate the **Group** and **Scope** tabs to further isolate the KPI data.

KPIs data export elements

This table describes the elements in the **Schedule KPI Periodic Export Task** drawer.

Table 90: Schedule KPI Periodic Export Task Elements

Element	Description	Data Input Notes
Export Frequency	Frequency at which the export occurs	Format: Option Range: Once, Fifteen Minutes, Hourly, Daily, or Weekly Default: Once **Note:** Depending on what upload frequency is selected, some scheduling choices may become inactive and the buttons or pull-down menus are grayed out. Note that the Fifteen Minute, Hourly, Daily and Weekly scheduling options are only available when provisioning is enabled.
Task Name	Name of the scheduled task.	Format: Textbox Range: Maximum length is 40 characters. Valid characters are alphanumeric, minus sign, and spaces between words. The first character must be an alpha character. The last character must not be a minus sign. A value is required. **Note:** This field is not active if the selected export frequency is once.
Description	Optional 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. **Note:** This field is not active if the selected export frequency is once.
Filename Prefix	Optional export filename prefix. The extension to pre-pend the generated export file name.	Format: Textbox Range: Maximum length is 8 characters; alphanumeric (a-z, A-Z, and 0-9).

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 is written to the export directory.	Format: Scrolling list Range: 0 to 59 Default: 0 **Note:** This field is not active if the selected export frequency is Once, Daily, or Weekly. This field is only active if the selected export frequency is Fifteen Minutes and Hourly.
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM **Note:** This field is not active if the selected export frequency is Once, Fifteen Minutes, or Hourly. This field is only active if the selected export frequency is Daily or Weekly.
Day of Week	Day of week on which the export occurs	Format: Option Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday **Note:** This field is enabled only if Weekly is selected. Default: Sunday

Exporting KPIs

You can schedule a one-time or periodic export of KPI data from the **KPIs** page. KPI data can be exported immediately, or you can schedule periodic exports to occur every fifteen minutes, hourly, daily, or weekly.

The **KPI Export** feature uses the Automated Performance Data Export (APDE) framework. See *Files* for more information on APDE generated files. Once the export task is complete the files can be located in the files management storage area which can be accessed by navigating from the main menu to **Status & Manage** > **Files**. The files are 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*.

One or more export files are created for every export task. Exports based on a filtered data set honor scope but not group. All groups are included in the export task. Each exported file contains a unique name with a suffix type of csv. By default the system uses gzip compression. The default compression type can be changed. See *Data Export* for more information.

The csv subgroup portion of the filename is one of the following type:

- SCALAR - the report contains Non-Arrayed items; there is no index column.
- INDEXED - the report contains Arrayed items using a numerical index.
- <map_name> - the report contains Arrayed items using a common name mapped index.

Note: Index values can be either numeric or string. For CPU cores, naming the array indexes does not offer any significant value, but for other kinds of arrayed KPIs, the indexes may have a meaningful name (which are used in place of a numeric index.)

Use this procedure to initiate or schedule a KPI data export task.

1. Select **Status & Manage** > **KPIs**.
2. Apply the desired filter criteria. Select the **KPI Filter** drawer located to the right of the main work area. The filter icon is represented by a funnel. The drawer slides open and presents pull-down selections for both **Group** and **Scope**. Specify filter criteria and click **Go**.
   The KPIs are displayed according to the specified filter criteria.
3. Select the **KPI APDE Export** drawer located to the right of the main work area. The filter icon is represented by a stylistic clock. The drawer slides open and presents the export options.
4. Choose the **Export Frequency**. Based on this selection other fields may become active or inactive.
5. Enter a **Task Name**.

   This field is not active if the selected export frequency is once. For more information about **Task Name**, or any field on this page, see *KPIs data export elements*.
6. Optionally, enter a **Description**.

   This field is not active if the selected export frequency is once.
7. Optionally, enter a **Filename Prefix**.

   The filename prefix will be pre-pended to the generated export file name for quick identification.
8. Select the **Minute** if **Export Frequency** is fifteen minutes or hourly.

   If the selected export frequency is fifteen minutes or hourly, this is the minute of each period when the transfer is set to begin. For an export frequency of fifteen minutes, transfers occur four times per hour, and this field displays the minute of the first transfer.
9. Select the **Time of Day** if **Export Frequency** is daily or weekly.

   This field is not active if the selected export frequency is once, fifteen minutes, or hourly.
10. Select the **Day of Week** if **Export Frequency** is weekly.

    This field is not active if the selected export frequency is once, fifteen minutes, hourly, or daily.
11. Click **OK** to initiate the KPI export task.

    KPI export task progress can be monitored from the **KPI APDE Tasks** drawer. See *KPI Export Tasks*.

The data export task is initiated or scheduled.

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:

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

Note: You cannot edit or delete these types of scheduled tasks from **Status & Manage** > **Tasks** > **Scheduled Tasks**.

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.

KPI Export Tasks

You can monitor the progress of a **KPI APDE Export** task from the **KPI APDE Tasks** drawer. No task management actions are available from this drawer but active links to the exported files are presented upon selecting a specific task.

Use this procedure to monitor the status of a **KPI APDE Export** task. This procedure assumes an export has been performed or scheduled.

1. Select **Status & Manage** > **KPIs**.
2. Select the **KPI APDE Tasks** drawer located to the right of the main work area. The filter icon is represented by a stylistic list. The drawer slides open and presents the task list.
3. To access the active links to exported files select a completed task. The active links appear below the task list and are available for selecting.

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

   - *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.

Graph plots the information in selected rows on the grid over time with each line representing a row selected from the grid. A key is displayed to the right of the graph that shows which lines represent which rows.

When only rows of type percentage are selected, the graph displays a range from zero to one hundred on the y-axis. Otherwise, a range from the minimum value to the maximum value (with some buffer) is displayed. The y-axis automatically adjusts if a KPI goes outside the range displayed. When incompatible rows are selected a warning is presented at the top of the drawer stating " Mixed data detected. Results may not be as expected."

Use this procedure to graph KPIs:

1. Select **Status & Manage** > **KPIs**.
2. Apply the desired filter criteria. Select the **KPI Filter** drawer located to the right of the main work area. The filter icon is represented by a funnel. The drawer slides open and presents pull-down selections for both **Group** and **Scope**. Specify filter criteria and click **Go**.
   The KPIs are displayed according to the specified filter criteria.
3. To isolate the statistics of specific server navigate the tabs in the row containing **Scope** selection tabs. If the target server is not visible in the available screen space use the scroll right/left buttons located to the right or left of the visible tabs in the row containing scope selection tabs.

4. To isolate the statistics of specific group navigate the tabs in the row containing **Group** selection tabs. If the target group is not visible in the available screen space use the scroll right/left buttons located to the right or left of the visible tabs in the row containing group selection tabs.
5. Select one or more lines from the grid representing the desired data set.

   Note: Press **Ctrl** to individually select KPIs. Press **Shift** to select a range of KPIs.
6. Select the **KPI Graph** drawer located to the right of the main work area. The filter icon is represented by a stylistic graph. The drawer slides open and presents two action buttons, **Go** and **Reset**. Click **Go** to generate graph.
   The drawer is closed and the KPI graph is presented in the work area below the KPI grid.
7. To remove the graphing, navigate back to the **KPI Graph** drawer and select **Reset**.
   The drawer is closed and the KPI graph is no longer presented in the work area.

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 91: 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.

Process Status Element	Description
# 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.

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.

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 92: 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

Active Tasks Element	Description
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
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 93: Active Tasks Report Elements

Active Tasks Report Element	Description
Task ID	Task ID

Active Tasks Report Element	Description
Display Name	Task name
Task State	Current status of the task. Status values include: running, paused, completed, exception, and trapped.
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*

Note: APDE remote server copy tasks cannot be deleted or edited from the **Scheduled Tasks** page. The user must perform these actions from the **Data Export** page.

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 94: 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 95: 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 and logs 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`.

Note: Depending on the filtering used when the data was exported to the file management area, a scope may be added to the path. This may include a network element or server group.

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 96: 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:

File Content Type	File Name Common Examples
	export/<hostname>/Alarms/Alarms_<date-time-tz>_<task id>.csv.gz 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 97: 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 98: 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]** form.

Table 99: Schedule Measurement Data Export Elements

Element	Description	Data Input Notes
Report Scope	A collection of configurable elements to control report scope.	Format: Options
Report Groups	A graphical list of available groups for report generation.	Format: Checkboxes
Time Interval	A collection of configurable elements to schedule report generation.	Format: Options
Time Range	A collection of configurable elements to manage report generation.	Format: Options
Export Frequency	Frequency at which the export occurs	Format: Option Range: Once, Fifteen Minutes, Hourly, Daily, or Weekly Default: Once **Note:** Depending on what upload frequency is selected, some scheduling choices may become inactive and the buttons or pulldown menus are grayed out. Note that the Fifteen Minute, Hourly, Daily and Weekly scheduling options are only available when provisioning is enabled.
Task Name	Name of the scheduled task.	Format: Textbox

Element	Description	Data Input Notes
		Range: Maximum length is 40 characters. Valid characters are alphanumeric, minus sign, and spaces between words. The first character must be an alpha character. The last character must not be a minus sign. A value is required. **Note:** This field is not active if the selected export frequency is once.
Description	Optional 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. **Note:** This field is not active if the selected export frequency is once.
Filename Prefix	Optional export filename prefix. The extension to pre-pend the generated export file name.	Format: Textbox Range: Maximum length is 8 characters; alphanumeric (a-z, A-Z, and 0-9).
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 **Note:** This field is not active if the selected export frequency is Once, Daily, or Weekly. This field is only active if the selected export frequency is Fifteen Minutes and Hourly.
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM **Note:** This field is not active if the selected export frequency is Once, Fifteen Minutes, or Hourly. This field is only active if the selected export frequency is Daily or Weekly.
Day of Week	Day of week on which the export occurs	Format: Option Range: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday **Note:** This field is enabled only if Weekly is selected. Default: Sunday

Exporting measurements reports

You can initiate a one-time export task of a measurement report or schedule periodic exports from the **Measurements** > **Report** page. If filtering has been applied on the **Measurements** page, only filtered data is exported.

For each export task, 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 remote server data export feature. For more information about using remote server data export, see *Data Export*.

Use this procedure to export a measurements report to a file, or schedule a periodic data export task of this data.

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. Locate and select the scope tab that contains the measurements of interest.
   Scopes are presented in tabular form. If the target tab is not visible in the available screen space use the scroll right/left buttons located below the tool bar area and to the right or left of the visible tabs.
4. Click **Export**.

   The **Report [Export]** form appears.
5. Click to select the scope or sub-scope measurement report that you want to export.
6. 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.
7. Select the desired **Time Interval** and **Time Range**.
8. Choose the **Export Frequency**. Based on this selection other fields may become active or inactive.
9. Enter a **Task Name**.

   This field is not active if the selected export frequency is once. For more information about **Task Name**, or any field on this page, see *Measurements data export elements*.
10. Optionally, enter a **Description**.

    This field is not active if the selected export frequency is once.
11. Optionally, enter a **Filename Prefix**.

    The filename prefix will be pre-pended to the generated export file name for quick identification.
12. Select the **Minute** if **Export Frequency** is fifteen minutes or hourly.

    If the selected export frequency is fifteen minutes or hourly, this is the minute of each period when the transfer is set to begin. For an export frequency of fifteen minutes, transfers occur four times per hour, and this field displays the minute of the first transfer.
13. Select the **Time of Day** if **Export Frequency** is daily or weekly.

This field is not active if the selected export frequency is once, fifteen minutes, or hourly.

14. Select the **Day of Week** if **Export Frequency** is weekly.

    This field is not active if the selected export frequency is once, fifteen minutes, hourly, or daily.
15. Click **OK** to initiate the active alarms export task or **Cancel** to discard the changes and return to the **View Active** page.

The data export task is initiated or scheduled.

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:

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

Note: You cannot edit or delete those types of scheduled tasks from **Status & Manage** > **Tasks** > **Scheduled Tasks**.

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.

Glossary

A

AES

Advanced Encryption Standard

APN

Access Point Name

The name identifying a general packet radio service (GPRS) bearer service in a GSM mobile network. See also GSM.

C

CA

Certificate Authority: An entity that issues digital certificates

CAPM

Computer-aided policy making

CPA

Charging Proxy Application

The Charging Proxy Application (CPA) feature defines a DSR-based Charging Proxy Function (CPF) between the CTFs and the CDFs. The types of CTF include GGSN, PGW, SGW, HSGW, and CSCF/TAS.

CSR

Certificate Signature Request

A message sent from an applicant to a certificate authority to generate a 3rd party-signed local certificate.

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

C

separated by newlines (a newline is a special character or sequence of characters signifying the end of a line of text).

D

DA-MP

Diameter Agent Message Processor

A DSR MP (Server Role = MP, Server Group Function = Diameter Signaling Router). A local application that can optionally be activated on the DA-MP. A computer or blade that is hosting a Diameter Signaling Router Application.

DNS

Domain Name System

A system for converting Internet host and domain names into IP addresses.

DSCP

Differentiated Services Code Point

Provides a framework and building blocks to enable deployment of scalable service discrimination in the internet. The differentiated services are realized by mapping the code point contained in a field in the IP packet header to a particular forwarding treatment or per-hop behavior (PHB). Differentiated services or DiffServ is a computer networking architecture that specifies a simple, scalable and coarse-grained mechanism for classifying and managing network traffic and providing quality of service (QoS) on modern IP networks.

DSR

Diameter Signaling Router

D

A set of co-located Message Processors which share common Diameter routing tables and are supported by a pair of OAM servers. A DSR Network Element may consist of one or more Diameter nodes.

DTLS

Datagram Transport Layer Security

E

ES

Extension Shelf

The shelves in the EAGLE hat contain cards other than control cards (E5-OAM, GPSM-II for OAM, TDM, and MDAL cards). This shelf can be added to and removed from the database. These shelves are numbered from 1200 to 6100.

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.

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

G

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.

H

HA

High Availability

High Availability refers to a system or component that operates on a continuous basis by utilizing redundant connectivity, thereby circumventing unplanned outages.

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

A traffic distributor that routes TCP traffic sent to a target set address by application clients across a set

I

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

L

LDAP

Lightweight Directory Access Protocol

A protocol for providing and receiving directory information in a TCP/IP network.

LSU

Local SCCP User

Refers to an Application Configured with a Subsystem Number to handle “rt-on-ssn” traffic for local signaling point code hosted on MP server.

M

MAP

Mobile Application Part

An application part in SS7 signaling for mobile communications systems.

MCC

Mobile Country Code

A three-digit number that uniquely identifies a country served by wireless telephone networks. The MCC is part of the International Mobile Subscriber Identity (IMSI) number, which uniquely identifies

M

	a particular subscriber. See also MNC, IMSI.
MME	Mobility Management Entity
MMI	Man-Machine Interface
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.
MTP3	Message Transfer Part, Level 3

N

NOAM	Network Operations, Administration, and Maintenance
NP	Number Portability A capability that permits telecommunications users to maintain the same telephone access number as they change telecommunication suppliers.

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

O

determining faults, and alerting administrators.

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).

P

PCRF

Policy and Charging Rules Function

The ability to dynamically control access, services, network capacity, and charges in a network.

Maintains rules regarding a subscriber’s use of network resources. Responds to CCR and AAR messages. Periodically sends RAR messages. All policy sessions for a given subscriber, originating anywhere in the network, must be processed by the same PCRF.

In the Policy Management system, PCRF is located in the MPE device.

Software node designated in real-time to determine policy rules in a multimedia network.

PRT

Peer Route Table or Peer Routing Table

R

RBAR

Range Based Address Resolution

A DSR enhanced routing application which allows you to

R

route Diameter end-to-end transactions based on Application ID, Command Code, Routing Entity Type, and Routing Entity address ranges.

RS

Redirect Server

S

SBR

Subsystem Backup Routing

SCCP

Signaling Connection Control Part

The signaling connection control part with additional functions for the Message Transfer Part (MTP) in SS7 signaling. Messages can be transmitted between arbitrary nodes in the signaling network using a connection-oriented or connectionless approach.

SEC

Subscriber Entity Configuration

SG

Signaling Gateway

A network element that receives/sends SCN native signaling at the edge of the IP network. The SG function may relay, translate or terminate SS7 signaling in an SS7-Internet Gateway. The SG function may also be coresident with the MG function to process SCN signaling associated with line or trunk terminations controlled by the MG (for example, signaling backhaul). A Signaling Gateway could be modeled as one or more Signaling Gateway Processes, which are located at the border of the SS7 and IP networks. Where an SG contains more than

S

one SGP, the SG is a logical entity and the contained SGPs are assumed to be coordinated into a single management view to the SS7 network and to the supported Application Servers.

SGSN

Serving GPRS Support Node

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

Site Operations, Administration, and Maintenance

SOAP

Simple Object Access Protocol

SS7

Signaling System #7

A communications protocol that allows signaling points in a network to send messages to each other so that voice and data connections can be set up between these signaling points. These messages are sent over its own network and not over the revenue producing voice and data paths. The EAGLE is an STP, which is a device that routes these messages through the network.

S

SSH

Secure Shell

A protocol for secure remote login and other network services over an insecure network. SSH encrypts and authenticates all EAGLE IPUI and MCP traffic, incoming and outgoing (including passwords) to effectively eliminate eavesdropping, connection hijacking, and other network-level attacks.

SSL

Secure Socket Layer (SSL) is an industry standard protocol for clients needing to establish secure (TCP-based) SSL-enabled network connections

SSO

Single Sign-On

SSR

SIP Signaling Router

Function responsible for querying a redirection server and proxying requests to other SSR servers, redirect servers, SSR Service Points, and Gateways. It helps in evolving a Flat NGN network into a hierarchical network.

SUA

SCCP User Adaptation Layer

A protocol for the transport of any SCCP-User signaling over IP using the SCTP. The protocol is designed to be modular and symmetric, to allow it to work in diverse architectures.

T

TCP

Transmission Control Protocol

T

A connection-oriented protocol used by applications on networked hosts to connect to one another and to exchange streams of data in a reliable and in-order manner.

TLS

Transport Layer Security

A cryptographic protocol that provides security for communications over networks such as the Internet. TLS encrypts the segments of network connections at the transport layer end-to-end. TLS is an IETF standards track protocol.

TPD

Tekelec Platform Development

The Oracle Communications Tekelec Platform (TPD) is a standard Linux-based operating system packaged and distributed by Oracle. TPD provides value-added features for managing installations and upgrades, diagnostics, integration of 3rd party software (open and closed source), build tools, and server management tools.

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.

TSB

Technical Service Bulletin

U

U

UDR	User-Data-Request A user-identity and service indication sent by a Diameter client to a Diameter server in order to request user data.
UDRBE	UDR Back End
UTC	Coordinated Universal Time