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<table>
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<td>6-10</td>
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<tr>
<td>Viewing Export Status</td>
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<tr>
<td>Subscribing Client Status</td>
<td>6-12</td>
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<td>Subscribing Client Status elements</td>
<td>6-12</td>
</tr>
<tr>
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Introduction

This documentation describes the Oracle Communications User Data Repository (UDR) platform and the Oracle Communications Enhanced Subscriber Profile Repository (ESPR) application that runs on it. Included is an overview of the product and information about the graphical user interface (GUI) -- the purpose of each GUI page, the elements on each page, and how to enter data.

The Introduction section explains the purpose and organization of the documentation, defines the document's audience and admonishments, and provides information about technical support, training, and how to locate related publications.

Overview

This documentation describes the Oracle Communications User Data Repository (UDR) platform and the Oracle Communications Enhanced Subscriber Profile Repository (ESPR) application that runs on it. Included is an overview of the product and information about the graphical user interface (GUI) -- the purpose of each GUI page, the elements on each page, and how to enter data.

Scope and Audience

This documentation is intended for trained and qualified system operators and administrators who are responsible for managing the Enhanced Subscriber Profile Repository (ESPR) application on the User Data Repository (UDR) platform.

Note: Some of the User Data Repository components are shared by other applications in the product line. For this reason, the documentation for the shared components may include references to these other applications, and/or describe GUI options not visible or applicable to User Data Repository. For example, DSR applications (such as RBAR, FABR, CPA, and Policy DRA) and IPFE are currently not used by User Data Repository, so you may ignore references to these applications.

Manual Organization

This document is organized into the following chapters:

1. Introduction explains the purpose and organization of the documentation, its audience, defines admonishments and writing conventions, and provides information about technical support.

2. User Interface Introduction describes the organization and usage of the application's user interface.
3. About UDR and ESPR describes the Oracle Communications User Data Repository platform, its functionality, system architecture, and configuration.

4. Configuration describes the UDR Configuration menu options and their associated functions.

5. Subscriber Entity Configuration describes the UDR Subscriber Entity Configuration menu options and their associated functions.

6. Maintenance describes the UDR Maintenance menu options and their associated functions.

**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>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Danger" /></td>
<td>Danger: (This icon and text indicate the possibility of personal injury.)</td>
</tr>
<tr>
<td><img src="image" alt="Warning" /></td>
<td>Warning: (This icon and text indicate the possibility of equipment damage.)</td>
</tr>
<tr>
<td><img src="image" alt="Caution" /></td>
<td>Caution: (This icon and text indicate the possibility of service interruption.)</td>
</tr>
<tr>
<td><img src="image" alt="Topple" /></td>
<td>Topple: (This icon and text indicate the possibility of personal injury and equipment damage.)</td>
</tr>
</tbody>
</table>

**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](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](http://www.adobe.com).

1. Access the Oracle Help Center site at [http://docs.oracle.com](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

My Oracle Support is your initial point of contact for all product support and training needs. A representative at Customer Access Support can assist you with My Oracle Support registration.

Call the Customer Access Support 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 My Oracle Support registration and opening a support ticket.

My Oracle Support 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.
User Interface Introduction

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

User interface organization

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

User Interface Elements

Table 2-1 describes elements of the user interface.

<table>
<thead>
<tr>
<th>Element</th>
<th>Location</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>Top bar across the web page</td>
<td>The left side of the banner provides the following information:</td>
</tr>
<tr>
<td>Banner</td>
<td></td>
<td>• Displays the company name,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• product name and version, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• the alarm panel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The right side of the banner:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Allows you to pause any software updates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Links to the online help for all software.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Shows the user name of the currently logged-in user.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provides a link to log out of the GUI.</td>
</tr>
<tr>
<td>Main Menu</td>
<td>Left side of screen, under banners</td>
<td>A tree-structured menu of all operations that can be performed through the user interface. The plus character (+) indicates a menu item contains subfolders.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To display submenu items, click the plus character, the folder, or anywhere on the same line.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To select a menu item that does not have submenu items, click on the menu item text or its associated symbol.</td>
</tr>
</tbody>
</table>
**Table 2-1  (Cont.) User Interface Elements**

<table>
<thead>
<tr>
<th>Element</th>
<th>Location</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Area</td>
<td>Right side of panel under status</td>
<td>Consists of three sections: Page Title Area, Page Control Area (optional), and Page Area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Page Title Area: Occupies the top of the work area. It displays the title of the current page being displayed, date and time, and includes a link to context-sensitive help.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Page Control Area: Located below the Page Title Area, this area shows controls for the Page Area (this area is optional). When available as an option, filter controls display in this area. The Page Control Area contains the optional layout element toolbar, which displays different elements depending on which GUI page is selected. For more information, see Optional Layout Element Toolbar.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Page Area: Occupies the bottom of the work area. This area is used for all types of operations. It displays all options, status, data, file, and query screens. Information or error messages are displayed in a message box at the top of this section. A horizontal and/or vertical scroll bar is provided when the displayed information exceeds the page area of the screen. When a user first logs in, this area displays the application user interface page. The page displays a user-defined welcome message. To customize the message, see Customizing the Login Message.</td>
</tr>
</tbody>
</table>

| Session Banner   | Across the bottom of the web page | The left side of the banner provides the following session information:                                                          |
|                  |                                   | • The name of the machine to which the user is connected, and whether the user is connected via the VIP or directly to the machine. |
|                  |                                   | • The HA state of the machine to which the user is connected.                                                                  |
|                  |                                   | • The role of the machine to which the user is connected.                                                                          |
|                  |                                   | The right side of the banner shows the alarm panel.                                                                                |

**Main menu options**

This table describes all main menu user interface options. Note that user documentation for the Administration, Configuration, Alarms & Events, Security Log, Status & Manage, and Measurements menu options is available in the Operations, Administration, and Maintenance (OAM) section of the documentation.
Note: The menu options that appear can differ according to the permissions assigned to a user's log-in account, as well as to the type of server the user is logged into. For example, the Administration menu options would not appear on the screen of a user who does not have administrative privileges. Similarly, when the user is accessing the GUI from a Network Operations, Administration, and Provisioning (NOAMP) server, the Diameter menu option does not appear.

Table 2-2  Main Menu Options

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>The Administration menu allows you to:</td>
</tr>
<tr>
<td></td>
<td>• Set up and manage user accounts</td>
</tr>
<tr>
<td></td>
<td>• Prepare, initiate, monitor, and complete upgrades</td>
</tr>
<tr>
<td></td>
<td>• View the software versions report</td>
</tr>
<tr>
<td></td>
<td>• Configure group permissions</td>
</tr>
<tr>
<td></td>
<td>• View session information</td>
</tr>
<tr>
<td></td>
<td>• Authorize IP addresses to access the user interface</td>
</tr>
<tr>
<td></td>
<td>• Configure options including, but not limited to, password history and expiration, login message, welcome message, and the number of failed login attempts before an account is disabled</td>
</tr>
<tr>
<td></td>
<td>• Configure SNMP services</td>
</tr>
<tr>
<td></td>
<td>• Configure Export Servers</td>
</tr>
<tr>
<td></td>
<td>• Configure Domain Name Services</td>
</tr>
<tr>
<td>Configuration</td>
<td>Provides access to configuring network elements, servers, server groups, and systems.</td>
</tr>
<tr>
<td>Alarms &amp; Events</td>
<td>Lists active alarms and alarm history.</td>
</tr>
<tr>
<td>Security Log</td>
<td>Allows you to view and export security log data.</td>
</tr>
<tr>
<td>Status &amp; Manage</td>
<td>Allows you to monitor the statuses of server processes, both collectively and individually, as well as perform actions required for server maintenance. Also allows you to view the status of file management systems, and to manage data files on servers throughout the system.</td>
</tr>
<tr>
<td>Measurements</td>
<td>Allows you to view, modify, import, and export measurement data.</td>
</tr>
<tr>
<td>Communication Agent</td>
<td>Provides infrastructure features and services for enabling inter-server communication.</td>
</tr>
<tr>
<td>Diameter Common</td>
<td>Allows you to configure network identifiers and MP profiles, and export and import configuration data.</td>
</tr>
<tr>
<td>Diameter</td>
<td>Allows you to configure topology hiding and import and export diameter interface settings.</td>
</tr>
</tbody>
</table>
**Table 2-2 (Cont.) Main Menu Options**

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDR</td>
<td>Allows you to configure options for the UDR, UDRBE, and subscriber entities. Allows you to perform maintenance on subscriber queries, connections, the command log and to view the import, export, and subscribing client status.</td>
</tr>
</tbody>
</table>

**Common Graphical User Interface Widgets**

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

**System Login Page**

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

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

**Customizing the Login Message**

Before logging in, the System Login page appears. You can create a login message that appears just below the **Log In** button on the System Login page.
1. From the **Main Menu**, click **Administration > General Options**.
   
The General Options Administration page appears.

2. Locate **LoginMessage** in the **Variable** column.

3. Enter the login message text in the **Value** column.

4. Click **OK** or **Apply** to submit the information.
   
   A status message appears at the top of the Configuration Administration page to inform you if the operation was successful.

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

**Supported Browsers**

This application supports the use of Microsoft® Internet Explorer 8.0, 9.0, or 10.0. It is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the [Oracle Software Web Browser Support Policy](#) for details.

**Main Menu Icons**

This table describes the icons used in the Main Menu.
Table 2-3  Main Menu Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Folder Icon]</td>
<td>Folder</td>
<td>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.</td>
</tr>
<tr>
<td>![Config File Icon]</td>
<td>Config File</td>
<td>Contains operations in an Options page.</td>
</tr>
<tr>
<td>![File with Magnifying Glass Icon]</td>
<td>File with Magnifying Glass</td>
<td>Contains operations in a Status View page.</td>
</tr>
<tr>
<td>![File Icon]</td>
<td>File</td>
<td>Contains operations in a Data View page.</td>
</tr>
<tr>
<td>![Multiple Files Icon]</td>
<td>Multiple Files</td>
<td>Contains operations in a File View page.</td>
</tr>
<tr>
<td>![File with Question Mark Icon]</td>
<td>File with Question Mark</td>
<td>Contains operations in a Query page.</td>
</tr>
<tr>
<td>![User Icon]</td>
<td>User</td>
<td>Contains operations related to users.</td>
</tr>
<tr>
<td>![Group Icon]</td>
<td>Group</td>
<td>Contains operations related to groups.</td>
</tr>
<tr>
<td>![Task Icon]</td>
<td>Task</td>
<td>Contains operations related to Tasks</td>
</tr>
<tr>
<td>![Help Icon]</td>
<td>Help</td>
<td>Launches the Online Help.</td>
</tr>
<tr>
<td>![Logout Icon]</td>
<td>Logout</td>
<td>Logs the user out of the user interface.</td>
</tr>
</tbody>
</table>

Work Area Displays

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

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

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

**Figure 2-2  Paginated Table**

<table>
<thead>
<tr>
<th>Action</th>
<th>System ID</th>
<th>IP Address</th>
<th>Permission</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit</td>
<td>lisa</td>
<td>10.25.62.4</td>
<td>READ_WRITE</td>
<td>Delete</td>
</tr>
</tbody>
</table>

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

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.

**Figure 2-3  Scrollable Table**

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Alarm ID</th>
<th>Timestamp</th>
<th>Severity</th>
<th>Product</th>
<th>Process</th>
<th>NE</th>
<th>Server</th>
<th>Type</th>
<th>Instance</th>
<th>Alarm Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>3498</td>
<td>31201</td>
<td>2009-Jun-11 18:07:41.214 UTC</td>
<td>MAJOR</td>
<td>Mlndrevert</td>
<td>procming</td>
<td>OWMPHE</td>
<td>tex0011000</td>
<td>PROC</td>
<td><a href="mailto:el@123.com">el@123.com</a></td>
<td>A managed process cannot be started or has unexpectedly terminated</td>
</tr>
<tr>
<td>5445</td>
<td>31201</td>
<td>2009-Jun-11 18:07:27.127 UTC</td>
<td>MAJOR</td>
<td>Mlndrevert</td>
<td>procming</td>
<td>SWAMP</td>
<td>tex0011002</td>
<td>PROC</td>
<td><a href="mailto:el@123.com">el@123.com</a></td>
<td>A managed process cannot be started or has unexpectedly terminated</td>
</tr>
<tr>
<td>5443</td>
<td>31603</td>
<td>2009-Jun-11 18:07:27.127 UTC</td>
<td>MAJOR</td>
<td>Mlndrevert</td>
<td>instmerge</td>
<td>SWAMP</td>
<td>tex0011002</td>
<td>COLI</td>
<td><a href="mailto:el@123.com">el@123.com</a></td>
<td>A managed process cannot be started or has unexpectedly terminated</td>
</tr>
<tr>
<td>5444</td>
<td>31204</td>
<td>2009-Jun-11 18:07:41.214 UTC</td>
<td>MAJOR</td>
<td>Mlndrevert</td>
<td>instmerge</td>
<td>SWAMP</td>
<td>tex0011002</td>
<td>COLI</td>
<td><a href="mailto:el@123.com">el@123.com</a></td>
<td>A managed process cannot be started or has unexpectedly terminated</td>
</tr>
<tr>
<td>5441</td>
<td>31209</td>
<td>2009-Jun-11 18:07:27.127 UTC</td>
<td>MAJOR</td>
<td>Mlndrevert</td>
<td>instmerge</td>
<td>SWAMP</td>
<td>tex0011002</td>
<td>SHY</td>
<td><a href="mailto:el@123.com">el@123.com</a></td>
<td>A managed process cannot be started or has unexpectedly terminated</td>
</tr>
</tbody>
</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 lists, buttons, and links.
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.

Reports

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

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

1. From the Main Menu, click Administration > General Options.
2. Locate Welcome Message in the Variable column.
3. Enter the desired welcome message text in the Value column.
4. Click OK to save the change or Cancel to undo the change and return the field to the previously saved value.

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

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

Column headers (sorting)

Some column headers are links that, when clicked, sort the table by that column. Sorting does not affect filtering. Column headers that are black and group column headers are not sortable.
**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 2-4 contains examples of Action buttons.

<table>
<thead>
<tr>
<th>Action Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Inserts data into a table.</td>
</tr>
<tr>
<td>Edit</td>
<td>Edits data within a table.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes data from table.</td>
</tr>
<tr>
<td>Change</td>
<td>Changes the status of a managed object.</td>
</tr>
</tbody>
</table>

Some Action buttons take you to another page.

Submit buttons, described in Table 2-5, 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>
<thead>
<tr>
<th>Submit Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>Submits the information to the server, and if successful, returns to the View page for that table.</td>
</tr>
<tr>
<td>Apply</td>
<td>Submits the information to the server, and if successful, remains on the current page so that you can enter additional data.</td>
</tr>
<tr>
<td>Cancel</td>
<td>Returns to the View page for the table without submitting any information to the server.</td>
</tr>
</tbody>
</table>

---

**Optional Layout Element Toolbar**

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

**Figure 2-9  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.

Figure 2-10  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.
   The selected element opens and overlays the work area.
2. Click X to close the element display.

Filters

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

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

Note: Once enabled, the Network Element filter affect all pages that list or display data relating to the Network Element.

• Collection Interval – When enabled, the collection interval filter limits the data to entries collected in a specified time range.

• Display Filter – The display filter limits the data viewed to data matching the specified criteria.

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

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

Figure 2-11  Examples of Filter Styles

Filter Control Elements

This table describes filter control elements of the user interface.

Table 2-6  Filter Control Elements

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>=</td>
<td>Displays an exact match.</td>
</tr>
<tr>
<td>!=</td>
<td>Displays all records that do not match the specified filter parameter value.</td>
</tr>
<tr>
<td>&gt;</td>
<td>Displays all records with a parameter value that is greater than the specified value.</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Displays all records with a parameter value that is greater than or equal to the specified value.</td>
</tr>
<tr>
<td>&lt;</td>
<td>Displays all records with a parameter value that is less than the specified value.</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Displays all records with a parameter value that is less than or equal to the specified value.</td>
</tr>
<tr>
<td>Like</td>
<td>Enables you to use an asterisk (*) as a wildcard as part of the filter parameter value.</td>
</tr>
<tr>
<td>Is Null</td>
<td>Displays all records that have a value of Is Null in the specified field.</td>
</tr>
</tbody>
</table>
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 list.
3. Click Go to filter on the selection or click Reset to clear the selection.
4. For data tables that support compound filtering, click Add to add another filter condition and repeat steps 2 through 4.
   Multiple filter conditions are joined by an AND operator.

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 list.
   The unit of time can be seconds, minutes, hours, or days.
4. Select Beginning or Ending from the list.
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 with the Display Filter field. This process is the same for all data tables. However, all filtering operations are not available for all tables.

Note: Display Filter does not support compound filtering. For example, you cannot filter on both severity and a server name. Try to filter on a single filter criteria, such as the server hostname for server-scoped metric cells; or the application name for St- and NE-scoped metric cells. You can also sort by congestion level (descending) to help improve your filter.
1. Click **Filter** in the optional layout element toolbar.

2. Select a field name from the **Display Filter** list.
   
   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.

3. Select an operator from the operation selector list.

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. Click **Go** to filter on the selection, or click **Reset** to clear the selection.

   Records are displayed according to the specified criteria.

---

**Note:** PCA was known as PDRA and may still be seen in some filtering.

---

**Auto refresh controls**

Auto refresh controls are widgets that control the rate at which the Page Area refreshes on some pages. They are located in the Page Control Area on the right side. Auto refresh can be set to **15** seconds or **30** seconds, and it can be turned off. The changes take effect immediately.

Click one of the Auto Refresh options to set the auto refresh rate. Click the **Off** option to terminate automatic refreshing of the page.

**Auto Refresh:** 15 | 30 | Off

---

**Pause Updates**

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

---

**Max Records Per Page Controls**

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

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

2. Change the value of the **MaxRecordsPerPage** variable.

---

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

---

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

   **OK** saves the change and returns to the previous page.
Apply saves the change and remains on the same page.

The maximum number of records displayed is changed.

**Message display**

A message appears at the top of the Work Area on a page when a process needs to communicate errors or information. When an event is in progress, a refresh link may be provided here so that you can refresh without having to use the browser’s refresh function.

These are examples of some of the messages that can appear in a Work Area:

- **Export in progress... [Click to refresh]**
  0 of 3 Servers completed successfully to MySvr1 File Management Area.
  Filename: Logs.TekCore.MySvr1.20060803_165903.tgz

- **Whatever you did, it worked.**

- **Warning:** Prowsecp is manually disabled.

- **There was an error:**
  Error Code 1234 - Insert failed: Mandatory field 'Domain Name' missing
This introduction will familiarize you with the functionality, system architecture, and configuration of the Oracle Communications User Data Repository (UDR) platform. This platform provides a highly-scalable, consolidated database back end for subscriber and profile data that can be leveraged across the product portfolio. UDR can utilize multiple application front ends with the database.

Currently, UDR supports the Oracle Communications Enhanced Subscriber Profile Repository (ESPR) application, a function used for the storage and management of subscriber policy control and pool data. XML-REST and XML-SOAP interfaces are used by ESPR for creating, retrieving, modifying, and deleting subscriber and pool data.

Product Functionality

This product provides the following functionality:

- GUI-based provisioning
- User data repository database - Stores subscriber data needed by the Enhanced Subscriber Profile Repository (ESPR) application. Stores subscription data objects (SDOs) which contain the entities (XML blobs, such as profile, state, and quota) associated with subscribers and pools. Also stores subscription notification objects (SNOs) which contain a list of application servers that have requested to be notified when entity data for a subscriber or pool changes.
- Provisioning front end application (one per interface type, such as RAS, XSAS)
- Provisioning back end (UDRBE) application - Provides back end database for subscriber and profile data
- Key database (indexing system)
- Configuration application (GUI and the Subscriber Entity Configuration (SEC))
- Supports XML-REST and XML-SOAP as subscriber provisioning interfaces
- XML format export and import of database contents
- Backup of disk synchronized tables
- Each SOAM masters DIAMETER connection configuration data that is scoped to its site. This configuration data is small relative to the NOAMP provisioning data.
- Measurements and KPIs
- Alarms, events, and logs for all interfaces
• **DB, SDO, and SNO Audits:**
  - **DB Audit** - Replication audit within replicas and active server
  - **SDO Audit** - Removes auto-enrolled subscribers that are inactive or expired and removes entities that no longer exist
  - **SNO Audit** - Removes expired notification subscriptions and notification subscriptions whose subscribing client no longer exists

• Backup and restore of UDR database components

• Disaster recovery of UDR - Geodiverse site

• Monitoring exceptions

• Subscriber notification functionality - Allows network clients to subscribe to and receive notifications when entity data for a subscriber is changed.

• Auto enrollment capability - Allows subscribers to be automatically created and automatically deleted when they are no longer active.

• Diameter Sh interface - Queries and updates entity data for a subscriber

• Subscriber query functionality - Queries entity data for a subscriber on a GUI

• Command log export functionality - Automatically exports provisioning commands received from the provisioning system for archiving and/or auditing

• Pool quota management - Provides basic pools for 1 to 25 subscribers, enterprise pools for over 25 subscribers

• Pool spanning functionality - Allows pool quota to be shared by subscribers hosted on different systems

**System Architecture**

The UDR platform provides a highly-scalable, consolidated database back end for subscriber and profile data. UDR interfaces multiple application front ends with the database.

This figure provides a high-level view of the architecture.
System Components

The system is comprised of several components:

**NOAMP Server**

The NOAMP (Network Operation, Administration, Maintenance, & Provisioning) servers provide OAM interface for UDR and hosts following applications:

- Subscriber Entity Configuration (SEC) Application and database
- Provisioning Front End Interface Application (one per interface type, e.g., REST or SOAP-XML)
- Provisioning Back End (BE) Application (maintains the Indexing System DB and modifies Entities based on Provisioning commands)
- UDR Application which manages Subscription Data Objects (SDOs) and Subscription Notification Objects (SNOs).
- Indexing System
- Subscriber Database

**Subscriber Entity Configuration**

Subscriber Entity Configuration (SEC) allows the operator to define, via the GUI, the names and characteristics of the data blobs that will be stored in the User Data Repository (UDR) as contents of a Subscription Data Object (SDO) register.
- Assign Names: e.g. Profile, PoolProfile, Quota, PoolQuota, State, etc.
- Assign basic attributes: e.g. opaque/transparent
- Assign transparent attributes: e.g. base-field-sets, field-sets, fields
- Add new fields and field-sets as a new version of an existing subscription entity.
- SEC determines which SDO register stores which subscription entity. (Register Map)
- SEC data is replicated from the active NOAMP to all OAMs and MPs.
- SEC also associates interface-specific message parameters with subscription entity managed objects. (Interface Entity Map)

**Provisioning Front End (FE) Application(s)**

The provisioning front ends are the processes interfacing to the provisioning clients (External provisioning systems are supplied and maintained by the network operator) and they run on the active NOAMP server.

Provisioning Clients will connect to Provisioning Front Ends to add, change, delete or retrieve subscriber/pool information in the ESPR database.

**UDR Back End (UDRBE) Interface**

The UDR Back End provides the back end application for the consolidated database for subscriber and profile data.

- Hosted on the active NOAMP
- Constitutes of **ProvBe**, Subscription, Notification Manager and **UdrbeApp** Tasks
- Processes Internal Requests from the Provisioning Front Ends.
- Subscription handling/Notification generation
- Receives Auto-enrollment requests from the UDR Application
- Modifies Subscriber data based on Provisioning commands (ProvBE)
- Modifies Subscriber data based on Sh Indications (**SPRBE**)

**Indexing System**

The Indexing system provides a means for the Provisioning Back End application on the NOAMP to manage Subscription Relationships and locate Subscription data that applies to a given request. The Indexing System stores User Identities, Identity Relationships, and Subscription Relationships. The Indexing System is updated (creates, deletes, changes) after a command is received on the Provisioning Front End Interface and forwarded to the Provisioning Back End. An Indexing System update applies to either one Individual Subscription or one Pool Subscription.

The Indexing System DB:

- is A-source data
- is replicated only to NOAMP Servers
- is synchronized to disk
• stores user identities, identity relationships and subscription relationships

• Normally maintained by provisioning or by network traffic (For example, auto enrollment in UDR)

The Indexing System provides provisioning and network clients the ability to:

• Lookup an individual subscription giving a user identity

• Lookup a pool subscription given a pool identity

• Lookup a pool subscription given an individual subscription

• Lookup members of a pool given a pool subscription

User Data Repository

The NOAMP Hosts the UDR, which stores Subscription Data Objects (SDOs) that contain the entities (XML Blobs) such as profile, state and quota associated with subscribers and pools. UDR stores Subscription Notification Objects (SNOs), which record application servers that need to be notified when an entity changes.

An Individual Subscription is all data associated with a particular network user that cannot be shared by multiple network users.

A Pool Subscription is all data associated with a particular group of network users and that is shared by all members of the group. Individual and Pool Subscription Data Objects (SDOs) contain entities (XML blobs such as profile, state and quota).

A Subscription Notification Object (SNO) contains a list of network clients that have requested to be notified when entity data for a subscriber is changed.

For UDR data:

• The data is A-source data.

• The active NOAMP masters the UDR DB and makes it durable by synchronizing the database to disk, and by replicating the database to the standby NOAMP and the active DR NOAMP.

• The active DR NOAMP replicates the UDR data to the standby DR NOAMP.

• The data is not replicated to the MPs or SOAMs.

The active NOAMP masters the database and makes it durable by synchronizing the database to disk and replicating the database to the standby NOAMP and to the spare-active DR NOAMP. The spare-active DR NOAMP&P replicates this data to the spare-standby DR NOAMP. The data is not replicated to the MPs.

Disaster Recovery (DR) NOAMP

The Disaster Recovery (DR) Provisioning Site is another UDR Provisioning Site. It is recommended to use a geo-redundant DR Provisioning site; however, having a DR Provisioning Site is not required. The DR Provisioning Site is similar to the Primary Provisioning Site. The DR Provisioning Site has the same hardware configuration and network accessibility as the Primary Provisioning Site. The Primary and DR Provisioning Sites have a different VIP for their Active UDR Servers.

The DR Provisioning Site’s databases are kept up to date through real-time replication of subscriber and application data from the Primary Provisioning Site’s Active UDR Server. Under normal operating conditions, the DR Active UDR Server does not have
an active provisioning front end, active provisioning backend and active UDR application backend. When the Primary Provisioning Site’s Active and Standby UDR Server fails, the system automatically fails over from the Primary Provisioning Site’s Active UDR Server to the Disaster Recovery Provisioning Site’s Active UDR Server. After the Disaster Recovery Provisioning Site becomes active, it shall take over all the functions of the Primary Provisioning Site’s Active UDR server including the provisioning/signaling connections and database replication to subtending SOAMs.

**SOAM**

The primary purpose of the **SOAM** (System Operation, Administration, and Maintenance server) is to become the single point of entry for the replication stream of subscriber entity configuration data into a UDR Signaling Site. The SOAM is the combination of an active and a standby server running the SOAM application and operating in a high availability configuration. The active SOAM Server receives subscriber entity configuration data replicated from the Primary Provisioning Site’s Active UDR Server. In turn replicates the data to the Standby SOAM Server and to all subtending MPs located in the same site level. The user can configure/view Provisioning Options, Provisioning Connections, Subscribing Client permissions, Subscriber Entities, Transparent Entities, Interface Entity Map, Diameter information, alarms and measurements using a GUI connected to the SOAM’s VIP address.

**MP**

MPs provide a scalable signaling interface. All **MPs** are active. The functions of MP are listed below:

- Hosts the Client-side of the Network Application (PNRs host the server side as well)
- Hosts the Network Stack. For example: **Diameter, SOAP, LDAP, SIP, SS7**
- Connects to the signaling network

MPs that provide the Diameter Sh application use the Diameter Plug-In (**DPI**), which is the same Diameter stack used by Diameter Signaling Router (**DSR**). The Sh Application integrates as part of the Diameter Application Layer (**DAL**).

**Distributed Configuration**

The UDR supports centralized configurations:

- Centralized configuration:
  - All subscriber data configuration and maintenance occurs at the NOAMP level
  - Application management, such as configuring servers, occurs at the NOAMP level

Due to distributed configuration:

- All OAM Administration, Configuration, and Status & Manage tasks can only be performed when you are logged into an active NOAMP.
- All Alarms, KPIs, Measurements, and Events are accessible from the NOAMP.
Centralized Configuration

Subscriber provisioning data is provisioned at the active server of the Primary UDR cluster and replicated to all NOAMP servers on the network. System configuration and subscriber data is provisioned at the active server of the Primary UDR cluster, and then it's replicated to all other NOAMP servers.

REST/SOAP

The main method of subscriber data provisioning is XML-REST or XML-SOAP interfaces. REST Application Server (RAS) and XML SOAP Application Server (XSAS) are the Provisioning Front End (FE) processes that interface to Provisioning Clients and run on active NOAMP servers.

GUI Provisioning

Local provisioning can be done using the GUI menu. The GUI can be used to manage Provisioning setup, to make direct changes to the subscriber database entries, and to perform application operations, management, and provisioning.

User Data Repository Data Model

The User Data Repository is a system used for the storage and management of subscriber policy control data. The User Data Repository functions as a centralized repository of subscriber data for the PCRF.

Subscriber-related data includes:

- Profile/Subscriber Data: pre-provisioned information that describes the capabilities of each subscriber. This data is typically written by the your OSS system (via a provisioning interface) and referenced by the PCRF (via the Sh interface).

- Quota: information that represents the subscriber’s use of managed resources (quota, pass, top-up, roll-over). Although the User Data Repository provisioning interfaces allow quota data to be manipulated, this data is typically written by the PCRF and only referenced using the provisioning interfaces.

- State: subscriber-specific properties. Like quota, this data is typically written by the PCRF, and referenced using the provisioning interfaces.

- Dynamic Quota: dynamically configured information related to managed resources (pass, top-up, roll-over). This data may be created or updated by either the provisioning interface or the Sh interface.

- Pool Membership: The pool to which the subscriber is associated. The current implementation allows a subscriber to be associated with a single pool, although the intention is to extend this to multiple pools in the future.

The User Data Repository can also be used to group subscribers using Pools. This feature allows wireless carriers to offer pooled or family plans that allow multiple subscriber devices with different subscriber account IDs, such as MSISDN, IMSI, or NAI to share one quota.

Pool-related data includes:

- Pool Profile: pre-provisioned information that describes a pool
- Pool Quota: information that represents the pool’s use of managed resources (quota, pass, top-up, roll-over)
- Pool State: pool-specific properties
- Pool Dynamic Quota: dynamically configured information related to managed resources (pass, top-up, roll-over)
- Pool Membership: list of subscribers that are associated with a pool

The data architecture supports multiple Network Applications. This flexibility is achieved though implementation of a number of registers in a Subscriber Data Object (SDO) and storing the content as Binary Large Objects (BLOB). An SDO exists for each individual subscriber, and an SDO exists for each pool.

The Index contains information on the following:

- Subscription:
  - A subscription exists for every individual subscriber, and for every pool
  - Maps a subscription to the user identities through which it can be accessed
  - Maps an individual subscription to the pool of which they are a member
- Pool Subscription:
  - A pool subscription exists for every pool
  - Maps a pool subscription to the pool identity through which it can be accessed
  - Maps a pool subscription to the individual subscriptions of the subscribers that are members of the pool
- User Identities:
  - Use to map a specific user identity to a subscription
    - IMSI, MSISDN, NAI and AccountId map to an individual subscription
    - PoolID maps to a pool subscription
- Pool membership
  - Maps a pool to the list of the individual subscriber members
- The Subscription Data Object (SDO):
  - An SDO record contains a list of registers, holding a different type of entity data in each register.
  - An SDO record exists for:
    - Each individual subscriber
      - Defined entities stored in the registers are:
        - Profile
        - Quota
- State
- Dynamic Quota

Each pool
- Defined entities stored in the registers are:
  - Pool Profile
  - Pool Quota
  - Pool State
  - Pool Dynamic Quota

Provisioning applications can create, retrieve, modify, and delete subscriber/pool data. The indexing system allows to access Subscriber SDO via IMSI, MSISDN, NAI, or AccountId. The pool SDO can be accessed via PoolId.

A field within an entity can be defined as mandatory, or optional. A mandatory field must exist and cannot be deleted.

A field within an entity can have a default value. If an entity is created, and the field is not specified, it will be created with the default value.

A field within an entity can be defined so that once created, it cannot be modified. Any attempt to update the field once created will fail.

A field within an entity can have a reset value. If a reset command is used on the entity, those fields with a defined reset value will be set to the defined value. This is currently applicable only to field values within a row for the Quota entity.

Note: This section describes the default User Data Repository data model as defined in the Subscriber Entity Configuration (SEC). The data model can be customized via the UDR GUI.
**Configuration Sequence**

The following configuration steps are required before using the UDR system for the first time.

Configure your system in the following order; perform the steps from the primary active NOAMP unless otherwise noted:

1. **Configure the first NOAMP** using
   Configuration > Network Elements;
   Configuration > Services; and
   Configuration > Servers.

2. **Configure remaining servers** using
   Configuration > Network Elements; and
   Configuration > Servers.

3. **Configure XSI networks (All SOAM sites)** using
4. **Pair primary NOAMP servers (for first NOAMP site only)** using
   - Configuration > Server Groups;
   - Status & Manage > HA; Status & Manage > Server;
   - Alarms & Events > View Active; and
   - Administration > SNMP.

5. **Pair SOAM and DR sites** using
   - Configuration > Server Groups;
   - Status & Manage > HA;
   - Status & Manage > Server.

6. **Configure MP server groups** using
   - Configuration > Server Groups; and
   - Status & Manage > Server.

7. **Configure MP signaling interfaces** using
   - Configuration > Network > Devices; and
   - Configuration > Network > Routes.

8. **Configure ESPR application on MP (all SOAM sites)** (from SOAM) using
   - Diameter > Configuration > DA-MPs > Profile Assignments;
   - Diameter > Maintenance > Applications; and
   - (from active NOAMP VIP)
     - Communication Agent > Maintenance > HA Services Status.

9. **Configure local nodes** (all SOAM sites) using
    - Diameter > Configuration > CEX Parameters;
    - Diameter > Configuration > Configuration Sets > CEX Configuration Sets; and
    - Diameter > Configuration > Local Nodes.
    - Add IP addresses for all of the MPs in the same server group as the SOAM.

10. **Configure peer nodes (all SOAM sites)** using
    - Diameter > Configuration > Peer Nodes.
    - Create a Peer Node for each of the PCRF’s MPEs.

11. **Configure MPE to MP connections (all SOAM sites)** using
    - Diameter > Configuration > Connections.
    - For each MP, create connections to all desired MPEs

12. **Add permissions for the FQDN of the peer node (primary NOAMP site)** using
    - UDR > Configuration > Subscribing Client Permissions.
- For each peer node’s FQDN value, create an entry on Subscribing Client Permissions page

13. Configure allowable remote connections (primary NOAMP site) using UDR > Configuration > Provisioning Connections.

The UDR installation provides a default configuration, so no additional configuration steps are required. Additional configuration actions may be taken to customize the system.
The UDR Configuration menu options allow you to configure provisioning options and view, insert, edit, and delete provisioning connections, NAI hosts, destinations, and routing entities.

The available database menu options vary based on the type of server you are logged into and the permissions assigned to your group. If you do not see a menu option you need, make sure you are logged into the appropriate type of server and ask your administrator to make sure the group your user ID belongs to has the appropriate permissions.

**Provisioning Options**

The Provisioning Options page controls how provisioning interfaces (REST/XSAS, etc.) work. The GUI is used to specify values for various global parameters that guide the behavior of imports and exports. Unless noted, any changes to options take effect immediately.

Connections between the application and the provisioning client are set up using the Provisioning Connections page.

**Provisioning Options elements**

This table describes the fields on the Provisioning Options page.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatibility Mode</td>
<td>The release version to which the current release is backward compatible.</td>
<td>Format: Dropdown menu&lt;br&gt;Range: R9.x, R10+&lt;br&gt;Default: R10+</td>
</tr>
<tr>
<td>Allow SOAP Connections</td>
<td>Whether or not to allow incoming provisioning connections. On a new software installation, SOAP connections are disabled by default. If both SOAP and REST connections are turned off on this page, alarm 13075 is raised.</td>
<td>Format: Check box&lt;br&gt;Range: Checked, Unchecked&lt;br&gt;Default: Checked Unchecked</td>
</tr>
<tr>
<td>SOAP Interface Idle Timeout</td>
<td>Maximum time (in seconds) that an open connection will remain active without a request being sent, before the connection is dropped.</td>
<td>Format: Numeric; seconds&lt;br&gt;Range: 1-86400&lt;br&gt;Default: 1200</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>SOAP Interface Port</td>
<td>SOAP Interface TCP Listening Port. NOTE: Changes to the TCP listening port do not take effect until the 'xsas' process is restarted. Also, you must specify a different port than the REST Interface.</td>
<td>Format: Numeric Range: 0-65535 Default: 62001</td>
</tr>
<tr>
<td>SOAP Username/Password</td>
<td>If checked, the provisioning interface validates the username and password received in the SOAP request header against the list of usernames and passwords configured from the Main Menu &gt; Administration &gt; Access Control &gt; Users page. Any request that does not match a valid user is then rejected. If left unchecked (default), the username and password are not validated.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Unchecked</td>
</tr>
<tr>
<td>Maximum SOAP Connections</td>
<td>Maximum number of simultaneous SOAP Interface client connections. NOTE: Changes to the Maximum SOAP Connections do not take effect until the 'xsas' process is restarted.</td>
<td>Format: Numeric Range: 1-100 Default: 100</td>
</tr>
<tr>
<td>SOAP Secure Mode</td>
<td>Whether the SOAP Interface operates in secure mode (using TLS), or unsecure mode (plain text).</td>
<td>Format: Dropdown menu Range: Secure, Unsecure DEFAULT = Secure</td>
</tr>
<tr>
<td>Maximum Requests in SOAP</td>
<td>The maximum number of requests in a single SOAP tx transaction.</td>
<td>Format: Numeric Range: 1-50 Default: 12</td>
</tr>
<tr>
<td>&lt;tx&gt; XML</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>Allow REST Connections</td>
<td>Whether or not to allow incoming provisioning connections on the REST Interface. On a new software installation, REST connections are disabled by default. If both SOAP and Rest connections are turned off on this page, alarm 13075 is raised.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Checked Unchecked</td>
</tr>
<tr>
<td>REST Interface Idle Timeout</td>
<td>Maximum time (in seconds) than an open REST connection will remain active without a request being sent, before the connection is dropped.</td>
<td>Format: Numeric; seconds Range: 1-86400 Default: 1200</td>
</tr>
<tr>
<td>REST Interface Port</td>
<td>REST Interface TCP Listening Port. NOTE: Changes to the TCP listening port do not take effect until the 'ras' process is restarted. Also, you must specify a different port than the SOAP interface.</td>
<td>Format: Numeric Range: 0-65535 Default: 8787</td>
</tr>
<tr>
<td>Maximum REST Connections</td>
<td>Maximum number of simultaneous REST interface client connections.</td>
<td>Format: Numeric Range: 1-100 Default: 100</td>
</tr>
<tr>
<td>REST Secure Mode</td>
<td>Whether or not the REST interface operates in secure mode (using TSL), or unsecure mode (plain text). NOTE: Changes to the Secure Mode do not take effect until the 'Allow REST Connections' process is disabled and then enabled.</td>
<td>Format: Dropdown menu Range: Secure, Unsecure Default: Secure</td>
</tr>
<tr>
<td>Remote Host IP Address</td>
<td>The IP address (either IPv4 dot-decimal or IPv6 colon-hexadecimal) and username of Remote Import/Export Host. Use the SSH Key Exchange button to enter and save the password for the remote host.</td>
<td>Format: IP Address - dotted decimal; Username - alphanumeric Range: IP Address - standard address format xxx.xxx.xxx.xxx; Username - all existing usernames on the remote host Default: IP Address - blank; Username - blank</td>
</tr>
<tr>
<td>Remote Export Transfers Enabled</td>
<td>Whether or not to allow export files to be copied to the Remote Export Host.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Unchecked</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Local Export Directory</td>
<td>Local directory where export files are created. This value is for reference only and cannot be changed.</td>
<td>Format: String Range: 0-255 characters Default: /var/TKLC/db/filemgmt/provexport</td>
</tr>
<tr>
<td>Remote Export Directory</td>
<td>Directory in the Remote export Host to which export files are transferred if configured.</td>
<td>Default: blank Range: 0-255 characters</td>
</tr>
<tr>
<td>Maximum Number of Exported Subscribers</td>
<td>The maximum number of subscribers that can be exported per export file. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric Range: 1-3000000 Default: 3000000</td>
</tr>
<tr>
<td>Export Status Lifetime</td>
<td>Number of days the Export operation's status information and associated files are available before they are automatically removed from the local system. This value is for reference only and cannot be changed.</td>
<td>Format: String Range: 1-365 days Default: 7</td>
</tr>
<tr>
<td>Remote Import Enabled</td>
<td>Whether or not import files are imported from a Remote Host.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Unchecked</td>
</tr>
<tr>
<td>Local Import Directory</td>
<td>Local directory to which import files are copied from the Remote Host. This value is for reference only and cannot be changed.</td>
<td>Format: String Range: 0-255 characters Default: /var/TKLC/db/filemgmt/provimport</td>
</tr>
<tr>
<td>Remote Import Directory</td>
<td>The directory in which import files exist on the Remote Import Host.</td>
<td>Format: String Range: 0-255 characters Default: blank</td>
</tr>
<tr>
<td>Import Status Lifetime</td>
<td>Number of days the Import operation's status information and associated files are available before they are automatically removed from the local system. This value is for reference only and cannot be changed.</td>
<td>Format: String Range: 1-365 days Default: 7</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| PNR Generation with Import             | Configure whether or not Sh PNR messages should be generated whenever a subscriber's or pool's data is updated or deleted with import. If checked, PNR(s) will be generated for subscribers with an active subscription if a relevant subscriber or pool is updated or deleted. If unchecked, no PNR(s) will be generated when the subscriber or pool is updated or deleted. | Format: Check box  
Range: Checked, Unchecked  
Default: Unchecked                                                                                           |
| Maximum Provisioning Backend Response Timeout | The maximum time (in seconds) that a transaction can remain open before provisioning front end expires the request sent.                                                                                                                                                                                                                     | Format: Numeric; seconds  
Range: 2-3600  
Default: 7                                                                                                           |
| Log Insert, Update, and Delete Provisioning Messages | Whether or not to log Insert/Update/Delete incoming and outgoing provisioning messages in the command log.                                                                                                                                                                                                                             | Format: Check box  
Range: Checked, Unchecked  
Default: Checked                                                                                               |
| Log Retrieve Provisioning Messages      | Whether or not to log retrieve incoming and outgoing provisioning messages in the command log.                                                                                                                                                                                                                                           | Format: Check box  
Range: Checked, Unchecked  
Default: Checked                                                                                               |
Table 4-1  (Cont.) Provisioning Options Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| Provisioning Response with Durability Confirmation | If checked, respond to provisioning commands after confirmation of Durability. Enabling this feature decreases the provisioning throughput. This feature applies to all provisioning requests received over any supported provisioning interface (REST or SOAP). When enabled, this feature forces the system to wait for completion of the data durability checks (before sending a provisioning request acknowledgement back, or responding to, the OSS). When disabled (unchecked), the acknowledgement is sent back without waiting for completion of the request’s data durability checks. | Format: Check box  
Range: Checked, Unchecked  
Default: Unchecked |

Editing provisioning options

Use this procedure to customize the default provisioning options settings.

You can only perform this task when logged into the active NOAMP server. Note that you must have permission to edit this page. Access permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Provisioning Options.

   The Provisioning Options page appears.

2. Modify the options you want to change by entering information in the appropriate fields.

   For a detailed explanation about the options and valid input for these fields, see Provisioning Options elements.

3. Click Apply.

   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.

   If the page contains any values that are not valid or are out of range, an error message appears.

UDRBE Options

Use the UDRBE Options (UDR Back End) page to specify values for various global parameters that guide the behavior of the UDR back end features. Unless noted, any
changes to options take effect immediately. Global parameters defined on this page include:

- Notifications
- Maximum subscriptions per subscriber
- Transaction durability
- Delay PNR (Push Notification Request) notifications

**UDRBE Options elements**

This table describes the fields on the UDRBE Options page.

<table>
<thead>
<tr>
<th>Table 4-2</th>
<th><strong>UDRBE Options Elements</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
<td><strong>Description</strong></td>
</tr>
</tbody>
</table>
| Cleanup Deleted Entity Enabled | Whether or not to automatically delete an entity for a subscriber if the entity is no longer defined in the Subscriber Entity Configuration | Format: Check box  
Range: Checked, Unchecked  
Default: unchecked |
| Notification Delivery Timeout | The time, in seconds, after which a delivery attempt for a notification is deemed to have timed out if no response is received. This value is for reference only and cannot be changed. | Format: Numeric  
Range: 1-600 (seconds)  
Default: 10 |
| Notification Maximum Delivery Attempts | The maximum number of times the MP (message processor) attempts to notify the associated MPE (multimedia policy engine) of a change in subscriber or pool information before the notification is deleted. This value is for reference only and cannot be changed. | Format: Numeric  
Range: 1-100  
Default: 3 |
| Notification Maximum Time To Live | The maximum time, in seconds, before an undelivered notification (once created) expires and is deleted. This value is for reference only and cannot be changed. | Format: Numeric  
Range: 1-604800  
Default: 86400 |
| Notification Delivery Retry Period | The minimum number of seconds between delivery attempts made for a notification that failed to be delivered but for which the Application Server is still available. This value is for reference only and cannot be changed. | Format: Numeric  
Range: 1-3600 (seconds)  
Default: 30 |
Table 4-2  UDRBE Options Elements (Cont.)

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification Maximum Records</td>
<td>The maximum number of outstanding notifications stored by the system. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-10000000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 10000</td>
</tr>
<tr>
<td>Notification Minimum Scan Interval</td>
<td>The minimum number, in seconds, between checking the list of outstanding notifications, for notifications that can potentially be retried. If a scan takes longer than this time, the next scan will start without additional delay. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-3600 (seconds)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 2</td>
</tr>
<tr>
<td>New Notification Send Rate</td>
<td>The maximum rate at which delivery attempts for newly generated notifications will be sent. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-100000 (requests per second)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 2500</td>
</tr>
<tr>
<td>Existing Notification Send Rate</td>
<td>The maximum rate at which delivery attempts for buffered notifications will be sent. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-100000 (requests per second)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 2500</td>
</tr>
<tr>
<td>Maximum Successive Failures Before Unavailable</td>
<td>The number of successive failed notification delivery attempts for an Application Server that results in the Application Server being set to unavailable. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 5</td>
</tr>
<tr>
<td>Delivery Retry Period When Unavailable</td>
<td>The number of seconds after which a periodic notification retry attempt for an Application Server that is unavailable will be triggered. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-3600 (seconds)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 300</td>
</tr>
<tr>
<td>Maximum Subscriptions per Subscriber</td>
<td>The maximum number of subscriptions per subscriber. The oldest subscription is deleted to make room when a new subscription is added. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 10</td>
</tr>
</tbody>
</table>
### Table 4-2 (Cont.) UDRBE Options Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction Durability</td>
<td>The amount of time (in seconds) allowed between a transaction being committed and it becoming durable. (A transaction becomes durable when it’s written to disk.) If the Transaction Durability Timeout lapses, a DURABILITY_TIMEOUT response is sent to the originating client. The associated request should be resent to ensure that the request was committed. NOTE: Changes to Transaction Durability Timeout do not take effect until UDRBE is restarted.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 2-3600 (seconds)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 5</td>
</tr>
<tr>
<td>Generate PNR based on User Identity</td>
<td>If checked, generates PNR(s) for a subscriber with an active subscription based on all related user identities except for which an update was received.</td>
<td>Format: Check box</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, Unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Unchecked</td>
</tr>
<tr>
<td>Delay PNR Generation</td>
<td>The number of seconds PNR message creation is delayed after a subscriber profile is updated from a provisioning client. To preserve backwards compatibility leave this at the default value of 0. Changing this value on a running production system does not impact functionality.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 0</td>
</tr>
</tbody>
</table>

### Editing UDRBE Options

Use this procedure to customize the default UDRBE options settings.

You can only perform this task when logged into the active NOAMP server.

1. Select **UDR > Configuration > UDRBE Options**.

   The UDRBE Options page appears.

2. Modify the options you want to change by entering information in the appropriate fields.

   For a detailed explanation about the options, which fields can be edited, and valid input for these fields, see **UDRBE options elements**.

3. Click **Apply**.

   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.
If the page contains any values that are not valid or are out of range, an error message appears.

**Provisioning Connections**

The Provisioning Connections page allows you to configure a whitelist of all allowable remote connections. Only servers listed in the provisioning connections list are allowed to remotely connect to the primary provisioning site’s NOAMP server and execute commands. UDR won’t know the connection type (REST/SOAP) until a connection is established. The connection type is displayed on the Connection Status page (accessible from the UDR > Maintenance menu).

---

**Note:** Connection options must be set prior to configuring connections. For more information about this option, see Provisioning Options.

---

By default, UDR allows up to 100 unsecure SOAP and 100 secure/unsecure REST provisioning connections; the maximum number of connections allowed can be changed using the UDR > Configuration > Provisioning Options page. For more information, see Provisioning Options.

From the Provisioning Connections page, you can:

- View the list of servers allowed to establish a remote connection and each server’s permissions
- Configure the UDR to allow connection requests from remote servers
- Delete servers from the connections list

**Provisioning Connections elements**

This table describes the fields on the Provisioning Connections page.

<table>
<thead>
<tr>
<th>Table 4-3 Provisioning Connections Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
<tr>
<td>System ID</td>
</tr>
</tbody>
</table>
Table 4-3 (Cont.) Provisioning Connections Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>A single IP address or a range of IP addresses denoted in CIDR format of IP addresses that can connect to the provisioning server. Single IP address is either in IPv4 dot-decimal notation or in IPv6 colon-hexadecimal notation; CIDR IP address is a single IP address notation prefixed with /n, where ‘n’ is the most significant bits in the address, also called the network prefix bits. For IPv4 CIDR, the network prefix must be between 20 and 32, inclusive. For IPv6 CIDR, the network prefix must be between 1 and 128, inclusive. It is a mandatory field.</td>
<td>Format: IPv4 dot-decimal notation (for a single address) or CIDR notation (for a range of addresses) Range: IPv4 dot-decimal notation - the first octet must be between 1-255, the other three must be between 0-255; CIDR notation - same as IPv4 but also includes / and a number between 20 and 32, for example, 204.22.31.42/25 Default: Blank</td>
</tr>
</tbody>
</table>

Viewing Provisioning Connections

Use this procedure to view a list of all allowable remote connections. Only servers listed here can remotely connect to the primary provisioning site’s NOAMP server and execute commands.

You can perform this task when logged into an active NOAMP.

1. Select UDR > Configuration > Provisioning Connections.

The Provisioning Connections page appears.

The currently allowed provisioning connections are listed in the table.

Adding a Provisioning Connection

Use this procedure to define an allowable remote connection. Only servers added through this procedure can remotely connect to the primary provisioning site’s NOAMP server and execute commands.

**Note:** Connection options must be set prior to configuring connections. For more information about this option, see Provisioning Options.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select UDR > Configuration > Provisioning Connections.

The Provisioning Connections page appears.
2. Click **Insert**.

   The Provisioning Connections [Insert] page appears.

3. Enter a system ID in the **System ID** field. This field is required.

4. Enter a unique IP address for the provisioning connection in the **IP Address** field. This field is required.

5. Perform one of the following:
   
   • Click **OK** to save the provisioning connection and return to the Provisioning Connections page.
   
   • Click **Cancel** to return to the Provisioning Connections page without saving the changes.

If **OK** is clicked and any of the following conditions exist, an error message appears:

   • Any required field is empty; no value was entered or selected
   
   • The entry in any field is not valid (wrong data type or out of the valid range)
   
   • The IP Address is not unique; it already exists in the system

### Deleting a Provisioning Connection

Use this procedure to delete an existing provisioning connection.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select **UDR > Configuration > Provisioning Connections**.

   The Provisioning Connections page appears.

2. Locate the connection you want to delete and click to highlight it.

3. Click **Delete**.

   A popup confirmation window appears.

4. Perform one of the following actions:
   
   • Click **OK** to delete the connection.
   
   • Click **Cancel** to cancel the delete function and return to the Provisioning Connections page.

### Subscribing Client Permissions

Use this page to view the list of client hosts and their associations with data reference and permissions. The Subscribing Client Permissions page determines a white list of all possible client’s permissions. In the Permission grid, the permissions column can list any combination of the three permissions: U (**UDR**), P (**PUR**) or S (**SNR**) (e.g. U, P, S, UP, US, PS, UPS).

**Note:** The client host being associated with permissions must exist in the system before adding a subscribing client permission record.
From the Subscribing Client Permissions page, you can:

- Filter the list of subscriber client permissions to display for only the desired client hosts
- View the list of existing subscriber client permissions
- Add a new subscriber client permission
- Delete a client host from the client permissions list

**Subscribing Client Permissions elements**

This table describes the fields on the Subscribing Client Permissions page.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Host</td>
<td>Define a client host to associate with a data reference and configure related permissions. This field is required.</td>
<td>Format: Text string - Fully Qualified Domain Name (FQDN) of this subscribing client. FQDN is case-insensitive and consists of a list of labels separated by periods. Each label can contain letters, numbers, dashes, periods, and an underscore. A label must start with a letter, number, or underscore (underscore can only be used as the first character), and must end with a letter or number. Range: 1-255 characters (label - 1-63 characters) Default: blank</td>
</tr>
<tr>
<td>Data Reference</td>
<td>Data reference associated with client host. The value for this field is automatically generated and cannot be accessed from here.</td>
<td>Format: Numeric Range: 0 Default: 0</td>
</tr>
<tr>
<td>Permissions</td>
<td>The permissions associated with the client host, to send PUR, SNR, and/or UDR messages. One, two, or three checkboxes may be checked.</td>
<td>Format: Check boxes Range: Checked, unchecked Default: Unchecked</td>
</tr>
</tbody>
</table>

**Viewing Subscribing Client Permissions**

Use this procedure to view the list of all existing client hosts and their associations with data reference and permissions.

You can perform this task when logged into an active NOAMP.

1. Select **UDR > Configuration > Subscribing Client Permissions**.
   
   The Subscribing Client Permissions page appears.
2. To view a subset of existing subscribing client permissions, use the Filter option in the upper left corner to define the permissions you want displayed.

The list of client hosts and their associations with data references and permissions is displayed.

**Adding a Subscribing Client Permission**

Use this procedure to define a client host and its permissions.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select **UDR > Configuration > Subscribing Client Permissions**.

   The Subscribing Client Permissions page appears.

2. Click **Insert**.

   The Subscribing Client Permissions [Insert] page appears.

3. Enter an existing client host name in the **Client Host** field.

4. Click to check mark the permissions to associate with this client host - **UDR**, **PUR**, and/or **SNR**.

5. Perform one of the following:
   - Click **OK** to save the permissions and return to the Subscribing Client Permissions page.
   - Click **Cancel** to return to the Subscribing Client Permissions page without saving the changes.

   If **OK** is clicked and any of the following exist, an error message appears:
   - Any required field is empty; no value was entered or selected
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The client host is not unique; it already exists in the subscribing client permissions list

**Deleting a Subscribing Client Permission**

Use this procedure to delete an existing client host/permission record.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select **UDR > Configuration > Subscribing Client Permissions**.

   The Subscribing Client Permissions page appears.

2. Click to highlight the permission record to delete, and click **Delete**.

   A popup confirmation window appears.

3. Perform one of the following actions:
   - Click **OK** to delete the permission record.
• Click **Cancel** to cancel the delete function and return to the Subscribing Client Permissions page.

Once the delete process is complete, an **Info** option appears in the upper left corner. When clicked, the record’s delete status is displayed.

**Subscriber Query and Provisioning**

The Subscriber Query and Provisioning page:

• Displays subscriber and pool statistics.

• Queries database information for a specific subscriber key and entity type. Query options include MSISDN, IMSI, NAI, AccountID, and PoolID. Querying the system provides the ability to retrieve a specific subscriber or pool entity to view, edit, delete, or to add another type of entity to associate with an existing subscriber or pool profile.

• Manually creates, updates, and deletes subscribers and pools. (Automatic provisioning of subscribers and pools occurs through REST and SOAP interfaces.)

**Subscriber Query and Provisioning Elements**

The Subscriber Query and Provisioning page consists of three sections:

• **Database Statistics**
  Displays statistics related to the number of subscribers and pools in the UDR database.

• **Create Profile**
  Allows you to create a subscriber or pool profile as well as associated entity data.

• **Subscriber Query**
  Provides the ability to retrieve a specific subscriber or pool entity to view, edit, delete, or to add another type of entity to associate with an existing subscriber or pool.

**Table 4-5 Database Statistics**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscribers</td>
<td>Number of provisioned and auto-enrolled subscribers in the UDR database. This value is updated every time the screen is refreshed or any button on the page is clicked. Also available is a subscriber count measurement calculated every 30 minutes (TotalSubscriberCount). This measurement is available on the <strong>Provisioning Performance</strong> Report accessed from the <strong>Measurements &gt; Report</strong> menu, and can be exported for archival purposes.</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Pools</td>
<td>Number of pools in UDR database. This value is updated every time the screen is refreshed or any button is clicked. Also available is a pool count measurement calculated every 30 minutes (TotalPoolCount). This measurement is available on the Provisioning Performance Report accessed from the Measurements &gt; Report menu, and can be exported for archival purposes.</td>
</tr>
<tr>
<td>MSISDN Keys</td>
<td>Number of MSISDN key values in UDR database. This value is updated every time the screen is refreshed or any button on the page is clicked.</td>
</tr>
<tr>
<td>IMSI Keys</td>
<td>Number of IMSI key values in UDR database. This value is updated every time the screen is refreshed or any button on the page is clicked.</td>
</tr>
<tr>
<td>NAI Keys</td>
<td>Number of NAI key values in UDR database. This value is updated every time the screen is refreshed or any button on the page is clicked.</td>
</tr>
<tr>
<td>Account ID Keys</td>
<td>Number of Account ID key values in UDR database. This value is updated every time the screen is refreshed or any button on the page is clicked.</td>
</tr>
<tr>
<td>NAI Hosts</td>
<td>Number of NAI Host values in UDR database. This value is updated every time the screen is refreshed or any button on the page is clicked.</td>
</tr>
<tr>
<td>Auto Enrolled Subscribers</td>
<td>Number of auto enrolled subscribers configured in the software's database and obtained from the SDO (subscription data object)/SNO (Subscription notification object) audit run. The number displayed here is calculated during a daily database audit; the timestamp next to the value displays the time when the audit occurred.</td>
</tr>
</tbody>
</table>
### Table 4-5  (Cont.) Database Statistics

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise Pools</td>
<td>Number of enterprise pools configured in the UDR database; the date and time the value was last calculated is displayed here. (An enterprise pool has a PoolProfile with the field Type set to Enterprise and is used for pools expecting to have more than 25 subscribers. Push Notification Request (PNR) messages are not generated for an enterprise pool when provisioning or usage updates occur. Note that updates on subscribers will still generate PNRs.) The number displayed here is calculated during a daily database pool audit; the timestamp next to the value displays the time when the audit occurred.</td>
</tr>
<tr>
<td>Subscribers in Enterprise Pools</td>
<td>Total number of subscribers who are members of enterprise pools. The number displayed here is calculated during a daily database pool audit; the timestamp next to the value displays the time when the audit occurred. This value is not updated when the screen is refreshed.</td>
</tr>
<tr>
<td>Ud Created Subscribers</td>
<td>Total number of subscribers in the UDR database created by retrieval from the Ud server.</td>
</tr>
</tbody>
</table>

### Table 4-6  Create Profile Element

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create Profile</td>
<td>Button used to access the create subscriber/pool page. Use to manually add a subscriber or pool profile entity to the UDR database.</td>
<td>Format: Button</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: N/A</td>
</tr>
</tbody>
</table>

### Table 4-7  Subscriber Query Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Type</td>
<td>Type of subscriber identifier used to retrieve, delete, or add a subscriber. This field is required.</td>
<td>Format: Pulldown list</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: IMSI, MSISDN, NAI, AccountId, PoolID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
</tbody>
</table>
Table 4-7  (Cont.) Subscriber Query Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Value</td>
<td>The IMSI, MSISDN, NAI, account ID, or pool ID value used to identify the subscriber being retrieved, deleted, or added. This field is required. If retrieving or deleting a subscriber or pool, this value must exist in the user data repository database. If adding a new record this value must not exist in the database.</td>
<td>Format: String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-255 characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Entity Type</td>
<td>Type of entity to retrieve, delete, or add. This field is automatically populated with Dynamic Quota (or Pool Dynamic Quota) when the Key Type is specified.</td>
<td>Format: Pulldown list</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Dynamic Quota, Profile, Quota, State, Pool Information; if Key Type is pool ID -- Pool Dynamic Quota, Pool Profile, Pool Quota, Pool State</td>
</tr>
<tr>
<td>Retrieve, Delete, Add Entity</td>
<td>Buttons used to retrieve or delete an existing subscriber or pool or to add a new entity (i.e., subscriber, pool, dynamic quota, quota, etc.). Once data is entered into the required Subscriber Query fields and Retrieve, Delete, or Add Entity is clicked, the selected process is performed and the data related to the specified record appears in the Result field. Note that Add Entity and Delete are not available if the Entity Type selected is Pool Information or Profile.</td>
<td>Format: Buttons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: N/A</td>
</tr>
</tbody>
</table>
### Table 4-7  (Cont.) Subscriber Query Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| Result  | Display window used to display retrieved subscriber or pool data. Content that can appear in this section of the page includes fields from the Entity, Field Set, Base Field Set, or Definition pages, and/or can come from opaque content. For more details on this content, first look up the associated **Entity Name** on the **UDR > Subscriber Entity Configuration > Entity** page to determine if the content is from a transparent or opaque entity (Entity Type). If the content is from the entity itself, view the **Entity elements** table for details about that content.  
- If from a transparent entity, view **Definition elements, Base Field Set elements, and Field Set elements** for details about that content.  
- If from an opaque entity, this content is user-defined and additional details are not available. | Format: Display window  
Range: Blank, selected subscriber/pool XML data  
Default: Blank |
| Update  | Button used to update existing entity when changes are made to that entity in the **Result** window. Note that this button is not available if the **Entity Type** selected is **Pool Information**. The **Update** button becomes enabled once an existing entity is successfully retrieved and appears on the page. | Format: Button  
Range: N/A  
Default: N/A |

## Retrieving a Subscriber or Pool

Use this procedure to retrieve and display entity data for an existing subscriber or pool.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to access this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Maintenance > Subscriber Query and Provisioning**.
The Subscriber Query and Provisioning page appears.

2. Select the type of subscriber identifier to display from the **Key Type** pulldown list.

3. Enter the existing subscriber/pool IMSI, MSISDN, NAI, account ID, pool ID value on which you are searching in the **Key Value** field.

4. Select the type of entity to display from the **Entity Type** pulldown list.

5. Click **Retrieve**.

The query is run and if the specified subscriber/pool data is found in the database it is displayed in the Result window at the bottom of the page.

**Adding a Profile**

New subscriber or pool profiles can be manually added to the UDR database. A subscriber or pool profile contains identifying attributes associated with a user or pool. These attributes must include at least one identifier (MSISDN, IMSI, NAI, and/or AccountId), and may include fields such as (BillingDay, Entitlement, Tier) and custom fields.

Follow these steps to add a new subscriber or pool to the database.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to access this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Configuration > Subscriber Query and Provisioning**.

   The Subscriber Query and Provisioning page appears.

2. Click **Create Profile**.

   The Create Profile/ Add Entity page appears.

3. Select the type of profile entity to create -- **Subscriber Profile** or **Pool Profile**.

   Depending on the profile type you selected, the related XML template is loaded and appears in the **Input XML Request Content** window.

4. Manually update the default XML values of the new entity for your subscriber/pool in the **Input XML Request Content** window. For example, if your subscriber only has an AccountID identifier, update this field for your subscriber and remove the MSISDN and IMSI fields. Use the **SOAP Provisioning Interface Specification** or **REST Provisioning Interface Specification**, available from the **Oracle Help Center**, if you need more information on subscriber or pool profile XML values.

5. Perform one of the following:
   - Click **OK** to save the new profile and return to the Subscriber Query and Provisioning page.
   - Click **Cancel** to return to the Subscriber Query and Provisioning page without saving the changes.

Once the subscriber/pool creation process is complete, an **Info** option appears in the upper left corner. When clicked, the subscriber/pool creation status is displayed.
Adding an Entity

A new entity can be manually added and associated with an existing subscriber or pool profile. The profile entity must exist in the database before the new entity can be added.

Follow these steps to add a new entity to an existing subscriber or pool profile in the database.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to access this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Subscriber Query and Provisioning.

   The Subscriber Query and Provisioning page appears.

2. Select the Key Type from the pulldown menu that you want to use to retrieve the existing subscriber/pool profile.

3. Enter the Key Value to use for retrieving the existing subscriber/pool profile.

4. Select the Entity Type from the pulldown menu you are adding to the subscriber/pool profile.

5. Click Add Entity

   The Create Profile/Add Entity page appears. Depending on the entity type you selected, the related XML template is loaded and appears in the Input XML Request Content window.

6. Manually update the default XML values of the new entity for your subscriber/pool in the Input XML Request Content window. Use the SOAP Provisioning Interface Specification or REST Provisioning Interface Specification, available from the Oracle Help Center, if you need more information on subscriber or pool XML values.

7. Perform one of the following:
   - Click OK to save the new entity and return to the Subscriber Query and Provisioning page.
   - Click Cancel to return to the Subscriber Query and Provisioning page without saving the changes.

Once the entity creation process is complete, an Info option appears in the upper left corner. When clicked, the entity creation status is displayed.

Editing an Entity

Follow these steps to manually change attributes for an existing entity in the user data repository.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to access this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Subscriber Query and Provisioning.
The Subscriber Query and Provisioning page appears.

2. Select the **Key Type** from the pulldown menu that you want to use to retrieve the existing subscriber/pool profile.

3. Enter the **Key Value** to use for retrieving the existing subscriber/pool profile.

4. Select the **Entity Type** from the pulldown menu for the entity that you are changing.

   The selected entity attributes display in the **Result** window.

5. Click **Retrieve**.

   The specified entity's attributes are retrieved and appear in the **Result** window.

6. Manually update the entity's attribute values in the **Result** window. Use the SOAP Provisioning Interface Specification or REST Provisioning Interface Specification, available from the Oracle Help Center, if you need more information on entity XML values.

7. Click **Update**.

Once the entity update process is complete, an **Info** option appears in the upper left corner. When clicked, the entity update status is displayed.

#### Deleting an Entity

Use this procedure to delete an existing subscriber or pool entity from the user data repository database. If the subscriber or pool profile entity is deleted, all other entities associated with this profile are also deleted.

**Note:** To delete a subscriber that belongs to a pool, the subscriber must first be removed from the pool. Similarly, to delete a pool that has subscribers in it, the subscribers must first be removed from the pool. These changes are accomplished using a REST or SOAP interface.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to access this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Maintenance > Subscriber Query and Provisioning**.

   The Subscriber Query and Provisioning page appears.

2. Select the type of subscriber identifier to delete from the **Key Type** pulldown list.

3. Enter the existing IMSI, MSISDN, NAI, account ID, or pool ID for the subscriber/pool being deleted in the **Key Value** field.

4. Select the type of entity in the **Entity Type** pulldown list. All entity types except **Pool Information** can be deleted.

5. Click **Retrieve**.

   The query is run and the specified subscriber/pool data is displayed in the Result window at the bottom of the page.
6. Click **Delete**.

A popup confirmation window appears.

7. Perform one of the following actions:

- Click **OK** to delete the subscriber or pool.
- Click **Cancel** to cancel the delete function and return to the Subscriber Query and Provisioning page.

The delete process will fail if:

- One of the required values is not specified
- The specified subscriber or pool does not exist in the database
- The subscriber being deleted belongs to a pool
- The pool being deleted contains one or more subscribers

If the delete is successful, the specified subscriber/pool and its related data is deleted from the database. Once the delete process is complete, an Info option appears in the upper left corner. When clicked, the record’s delete status is displayed.

**Auto Enrollment**

This menu provides access to the Auto Enrollment Options and Auto Enrollment Blacklist GUI pages:

- **Auto Enrollment Options** controls how the auto enrollment feature works on the back-end when provisioning or signaling traffic is received
- **Auto Enrollment Blacklist** provides the ability to deactivate auto enrollment on ranges of subscribers.

As part of the auto enrollment feature, the Maintenance > Subscriber Query page displays statistics for the auto enrolled subscribers. The value provides the count of the Auto Enrolled Subscribers configured in the software’s database and is obtained from the **SDO** (Subscriber Data Object)/**SNO** (Subscription Notification Object) audit run. Note that the number of subscribers displayed is updated when the screen is refreshed or the Submit button is pressed.

**Auto Enrollment Options**

The Auto Enrollment Options page controls how the auto enrollment feature works on the back-end. The GUI is used to specify values for various parameters that guide the behavior of the auto enrollment feature. Unless noted for the field on the GUI page, any changes to auto enrollment options take effect immediately.

**Auto Enrollment Options Elements**

This table describes the fields on the Auto Enrollment Options page.
### Table 4-8  Auto Enrollment Options Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Enrollment on Provisioning Enabled</td>
<td>Whether or not provisioning requests can trigger auto-enrollment when the user identity is not found.</td>
<td>Format: Check box  \nRange: Checked, Unchecked  \nDefault: Unchecked</td>
</tr>
<tr>
<td>Auto Enrollment on PUR Enabled</td>
<td>Whether or not PUR requests can trigger auto-enrollment when the user identity is not found.</td>
<td>Format: Check box  \nRange: Checked, Unchecked  \nDefault: Unchecked</td>
</tr>
<tr>
<td>Auto Enrollment on SNR Enabled</td>
<td>Whether or not SNR requests can trigger auto-enrollment when the user identity is not found.</td>
<td>Format: Check box  \nRange: Checked, Unchecked  \nDefault: Unchecked</td>
</tr>
<tr>
<td>Auto Enrollment Cleanup on SNR Enabled</td>
<td>Whether or not to automatically delete an auto-enrolled subscriber after receiving an SNR (unsubscribe) for the last active subscription for the subscriber.</td>
<td>Format: Check box  \nRange: Checked, Unchecked  \nDefault: Checked</td>
</tr>
<tr>
<td>Auto Enrollment Cleanup Inactive Subscriber Enabled</td>
<td>Whether or not to automatically delete an auto-enrolled subscriber after a subscription is inactive for a period that exceeds the inactivity timeout.</td>
<td>Format: Check box  \nRange: Checked, Unchecked  \nDefault: Checked</td>
</tr>
<tr>
<td>Auto Enrollment Inactivity Timeout</td>
<td>The duration, in days, of a lack of entity updates that causes an auto-enrolled subscriber to become eligible for cleanup.</td>
<td>Format: Numeric  \nRange: 0-90 days  \nDefault: 90</td>
</tr>
</tbody>
</table>

### Editing Auto Enrollment Options

Use this procedure to customize the default auto enrollment parameters. You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. **Select UDR > Configuration > Auto Enrollment Options.**
   
   The Auto Enrollment Options page appears.

2. **Modify the options you want to change by entering information in the appropriate fields.**
   
   For a detailed explanation about the options and valid input for these fields, see [Auto Enrollment Options Elements](#).

3. **Click Apply.**
   
   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.
If the page contains any values that are not valid or are out of range, an error message appears.

**Auto Enrollment Blacklist**

Auto Enrollment Blacklist allows you to deactivate auto enrollment on ranges of subscribers. This allows you to configure IMSI and MSISDN blacklist ranges for auto-enrolled subscribers. These ranges are checked before auto enrollment can be triggered from either the Provisioning interface or the Sh interface.

**Auto Enrollment Blacklist Elements**

This table describes the fields on the Auto Enrollment Blacklist page.

| Table 4-9  Auto Enrollment Blacklist Elements |
|---|---|---|
| **Element** | **Description** | **Data Input Notes** |
| Blacklist ID | Enter unique string that identifies the auto enrollment blacklist range. | Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number. Range: 1-32 characters. Default: Blank. |
| Key Type | Select the type of key used for blacklisting the subscribers. | Format: Pulldown menu. Range: MSISDN, IMSI. Default: MSISDN. |
| Start Range | Select start range of the key for the subscribers to be blacklisted. This value should be less than or equal to the value in End Range. | Format: Numeric. Range: 8-15 digits. Default: Blank. |
| End Range | Select end range of the key for the subscribers to be blacklisted. This value should be greater than or equal to the value in Start Range. | Format: Numeric. Range: 8-15 digits. Default: Blank. |

**Viewing Auto Enrollment Blacklists**

Use this procedure to view a list of existing auto enrollment blacklists.

You can perform this task when logged into an NOAMP. Note that this menu option only appears if you must have permission to view auto enrollment blacklists. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.


2. To view a subset of existing auto enrollment blacklists, use the Filter option in the upper left corner to define the blacklists you want displayed.
The list of existing auto enrollment blacklists is displayed.

**Adding an Auto Enrollment Blacklist**

Use this procedure to configure an auto enrollment blacklist, which is used to deactivate auto-enrollment on a range of subscribers. A blacklist is checked before auto enrollment can be triggered from either the Provisioning interface or the Sh interface.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Auto Enrollment > Auto Enrollment Blacklist.

   The Auto Enrollment Blacklist page appears.

2. Click Insert. (Note that you must have permission to add a blacklist record on this page for the Insert link to be active.)

   The Auto Enrollment Blacklist [Insert] page appears. For a detailed explanation about the options and valid input for the fields on this page, see Auto Enrollment Blacklist Elements.

3. Select the type of key in the Key Type field to be associated with this blacklist.

4. Enter the Start Range and End Range values for the subscriber ID range to be blacklisted.

5. Perform one of the following:
   - Click **OK** to save the blacklist and return to the Auto Enrollment Blacklist page.
   - Click **Cancel** to return to the Auto Enrollment Blacklist page without saving the changes.

   If **OK** is clicked and any of the following exist, an error message appears:
   - Any required field is empty; no value was entered or selected (All fields on this page are required.)
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The Blacklist ID is not unique; it already exists in the auto enrollment blacklist list

**Deleting an Auto Enrollment Blacklist**

Use this procedure to delete an existing blacklist record.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to delete on this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Auto Enrollment > Auto Enrollment Blacklist.

   The Auto Enrollment Blacklist page appears.
2. Click to highlight the blacklist record to delete, and click **Delete**. (Note that you must have permission to delete a blacklist record on this page for the Delete link to be active.)

   A popup confirmation window appears.

3. Perform one of the following actions:
   - Click **OK** to delete the blacklist record.
   - Click **Cancel** to cancel the delete function and return to the Auto Enrollment Blacklist page.

   Once the delete process is complete, an **Info** option appears in the upper left corner. When clicked, the record’s delete status is displayed.

---

**Command Log Export Options**

The Command Log Export Options page allows you to automatically export provisioning commands received by UDR from the provisioning system for the purpose of archiving and/or auditing. When enabled, the export is automatically triggered at the top of each hour and also occurs when the provisioning command log table reaches 80% of its maximum size. The command log export mechanism checks every five minutes to determine if either of these criteria is met. Information included in the file for each logged command includes the remote IP address from which the transaction was initiated (the provisioning client IP that sent the provisioning request), the date and time of the transaction, the connection ID (used to correlate requests and responses), and requests/responses (captured in XML format, along with XML command parameters). The exported file is stored in a compressed format and contains only commands logged since the previous export was triggered.

The exported file may grow in size depending on the size or number of the provisioning command messages captured in the command log table. There are free tools available that can be used to open large csv files or split a large file into multiple smaller files. It is recommended that one of these free tools be used to work with large exported files.

**Command Log Export Options Elements**

This table describes the fields on the Command Log Export Options page.
Table 4-10  Command Log Export Options Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Host IP Address for Command Log Export</td>
<td>The IP address (either IPv4 dot-decimal or IPv6 colon-hexadecimal) and username of Remote Command Log Export Host.</td>
<td><strong>IP Address</strong>&lt;br&gt;Format: IPv4 dot-decimal notation or IPv6 colon-hexadecimal&lt;br&gt;Range: The first octet must be between 1-255, the other three must be between 0-255&lt;br&gt;Default: Blank&lt;br&gt;&lt;br&gt;<strong>Username</strong>&lt;br&gt;Format: Alphanumeric&lt;br&gt;Range: all existing usernames on the remote host&lt;br&gt;Default: Blank</td>
</tr>
<tr>
<td>Local Command Log Export Directory</td>
<td>The local directory where command log export files are stored. This value is for reference only and cannot be changed.</td>
<td>Format: Alphanumeric and file path characters&lt;br&gt;Range: 0-255&lt;br&gt;Default: /var/TKLC/db/filemgmt/cmdlogexport</td>
</tr>
<tr>
<td>Remote Command Log Export Directory</td>
<td>The directory where command log export files are saved to on the remote server</td>
<td>Format: Alphanumeric and file path characters&lt;br&gt;Range: 0-255&lt;br&gt;Default: Blank</td>
</tr>
<tr>
<td>Command Log Export Status Lifetime</td>
<td>The number of days the command log export operation's status information and associated fields are available before they are automatically removed from the local system. This value is for reference only and cannot be changed.</td>
<td>Format: Numeric&lt;br&gt;Range: 0-255&lt;br&gt;Default: 1</td>
</tr>
<tr>
<td>Remote Command Log Export Enabled</td>
<td>If checked marked, command log export is enabled.</td>
<td>Format: Check box&lt;br&gt;Range: Checked, unchecked&lt;br&gt;Default: Unchecked</td>
</tr>
</tbody>
</table>

### Editing Command Log Export Options

Use this procedure to define parameters for the command log export, including defining the location where the log file will be written.

You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. **Select UDR > Configuration > Command Log Export Options.**

   The Command Log Export Options page appears.
2. Enter the **IP address** of the server where the log file is to be exported.

3. Enter the **Username** to be used for logging into the server.

4. Click **SSH Key Exchange** to enter the remote server password.

   A pop-up window appears.

5. Enter the remote server password and click **Submit**.

   The password is accepted and the window closes. This step needs to be completed only on initial setup or if the password changes.

6. Enter the directory where the log is to be stored on the remote server in **Remote Command Log Export Directory**.

7. Click to check mark **Remote Command Log Export Enabled** to enable the export process. If not checked, the export process is turned off.

8. Click **Apply**.

   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears. Changes take affect immediately.

   If the page contains any values that are not valid or are out of range, an error message appears.

---

**Pool Spanning**

The Pool Spanning menu contains options that allow you to configure pool spanning settings, define User Data Repository systems in your pool spanning network, and define pool **key ranges** used by these systems.

Customer networks may include multiple User Data Repository systems with subscribers partitioned between them based on either **IMSI** or **MSISDN** ranges. The pool spanning feature allows a pool **quota** to be shared by subscribers that are hosted on different systems. For example, a family may have members who live in different regions of the country and are hosted on different systems. With this feature, this family can share a single pool quota.

**Pool Spanning Options**

Use the Pool Spanning Options page to view the current system-wide pool spanning settings.

**Pool Spanning Options Elements**

This table describes the fields on the Pool Spanning Options page.

---

**Note:** Values on this page are only for viewing.
### Table 4-11 Pool Spanning Options Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool Profile Merge Enabled</td>
<td>Enables/disables pool profile merging on the non-host. When check marked, host and non-host pool profiles are merged, with all non-host pool profile field values replacing those defined by the host. This field is for viewing only and cannot be changed.</td>
<td>Format: Checkbox</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Unchecked</td>
</tr>
<tr>
<td>Pool Spanning Enabled</td>
<td>Enables/disables the pool spanning feature. This field is for viewing only and cannot be changed.</td>
<td>Format: Checkbox</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Unchecked</td>
</tr>
</tbody>
</table>

### Viewing Pool Spanning Options

Use this procedure to view pool spanning options settings.

You can perform this task only when logged into an NOAMP. This menu option appears only if you have permission to view pool spanning options. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Configuration > Pool Spanning > Pool Spanning Options**.

   The Pool Spanning Options page appears. The options on this page can be viewed but not edited.

### Pool Network Configuration

Use the Pool Network Configuration page to define and then view the User Data Repository systems that are in the pool spanning network. Each system is capable of being a remote pool host as well as hosting remote pool members. Each system in the pool network must use the same **UDR ID** numbering system for all systems in the network. The system you are currently on appears in the list with a **Type** of **Self**; all other systems appear as **Remote**.

### Pool Network Configuration Elements

This table describes the fields on the Pool Network Configuration page.
### Table 4-12 Pool Network Configuration Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDR Name</td>
<td>A unique name that represents a specific User Data Repository system within the pool spanning network. This name must be defined and represent the same system on all systems in the pool spanning network.</td>
<td>Format: String&lt;br&gt;Range: 1-15 characters&lt;br&gt;Default: Blank</td>
</tr>
<tr>
<td>UDR ID</td>
<td>A unique numeric ID associated with this system’s UDR Name. This ID must be defined and represent the same User Data Repository system on all systems in the pool spanning network.</td>
<td>Format: Numeric&lt;br&gt;Range: 1-4294967295&lt;br&gt;Default: Blank</td>
</tr>
<tr>
<td>Type</td>
<td>Select Self when configuring a pool network hosted by the system you are currently connected into. Select Remote when configuring a pool network hosted by another system.</td>
<td>Format: Pulldown menu&lt;br&gt;Range: Remote, Self&lt;br&gt;Default: Remote</td>
</tr>
</tbody>
</table>

### Viewing Pool Network Configurations

Use this procedure to view a list of existing pool network configurations defined on this User Data Repository system.

You can perform this task when logged into an NOAMP. Note that this menu option only appears if you have permission to view pool network configurations. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.


   The Pool Network Configurations page appears.

2. To view a subset of existing pool network configurations, use the Filter option in the upper left corner to define the blacklists you want displayed.

The list of existing pool network configurations is displayed.

### Adding a Pool Network Configuration

Use this procedure to define which User Data Repository systems are in the pool spanning network.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.


   The Pool Network Configuration page appears.
2. Click **Insert**. (Insert is not active if you don’t have permission to add a pool network configuration.)

    The Pool Network Configuration [Insert] page appears. For a detailed explanation about the options and valid input for the fields on this page, see Pool Network Configuration Elements.

3. Enter a **UDR Name** for the User Data Repository system you are adding to the pool spanning network.

4. Enter a unique numeric value as the **UDR ID** to be associated with this **UDR Name**.

5. In the **Type** field, select **Self** if you are configuring a pool network hosted by the system you are currently connected to, or select **Remote** if you are configuring a pool network hosted by another system. The value **Self** can only be used one time.

6. Perform one of the following:
   - Click **OK** to save this record and return to the Pool Network Configuration page.
   - Click **Cancel** to return to the Pool Network Configuration page without saving the changes.

   If **OK** is clicked and any of the following exist, an error message appears:
   - Any required field is empty; no value was entered or selected (all fields on this page are required).
   - The **UDR Name** already exists in the pool network
   - The **UDR ID** already exists in the pool network

**Deleting a Pool Network Configuration**

Use this procedure to delete an existing pool network configuration.

You can only perform this task when logged into the Active Primary NOAMP. You must have permission to delete a pool network configuration. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Configuration > Pool Spanning > Pool Network Configuration**.

   The Pool Network Configuration page appears.

2. Click to highlight the configuration to delete, and click **Delete**. (The **Delete** button is not active if you don’t have permission to delete a pool network configuration.)

   A popup confirmation window appears.

3. Perform one of the following actions:
   - Click **OK** to delete the record.
   - Click **Cancel** to cancel the delete function and return to the Pool Network Configuration page.

After the delete process is complete, an **Info** option appears in the upper left corner. When clicked, the record’s delete status is displayed.
UDR Key Range

The UDR Key Range page allows you to configure a pool key range, which is a range of PoolID values hosted by a User Data Repository system in a pool spanning network (identified by the UDR Name or UDR ID defined on the Pool Network Configuration page).

UDR Key Range Elements

This table describes the fields on the UDR Key Range page.

<table>
<thead>
<tr>
<th>Table 4-13  UDR Key Range Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
<tr>
<td>UDR ID</td>
</tr>
<tr>
<td>UDR Name</td>
</tr>
<tr>
<td>Key Type</td>
</tr>
<tr>
<td>Start Range</td>
</tr>
<tr>
<td>End Range</td>
</tr>
</tbody>
</table>

Viewing Key Ranges

Use this procedure to view a list of existing key ranges.

You can perform this task when logged into any NOAMP in this system. The UDR Key Range menu option only appears if you have permission to view key ranges. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Pool Spanning > UDR Key Range.

   The UDR Key Range page appears.

2. To view a subset of existing key ranges, use the Filter option in the upper left corner to define the key range you want displayed. Only the = operator can be used, and the key range start and stop must exactly match the recorded range. You
cannot pick an arbitrary range of IDs that you want to look up; you must know the exact range.

The list of existing key ranges is displayed.

Adding a Key Range

Use this procedure to configure a **key range** hosted by a User Data Repository system in the remote pool network.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to edit this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Configuration > Pool Spanning > UDR Key Range**.
   
   The UDR Key Range page appears.

2. Click **Insert**. (**Insert** is not active if you don’t have permission to add a UDR key range.)

   The UDR Key Range [Insert] page appears. For a detailed explanation about the options and valid input for the fields on this page, see **UDR Key Range Elements**.

3. Select the **UDR Name** field to be associated with the new key range.

4. Select the **Key Type** to be associated with this key range.

5. Enter the **Start Range** and **End Range** values for the key range.

6. Perform one of the following:
   
   - Click **OK** to save the key range and return to the UDR Key Range page.
   - Click **Cancel** to return to the UDR Key Range page without saving the changes.

   If **OK** is clicked and any of the following exist, an error message appears:

   - Any required field is empty; no value was entered or selected (All fields on this page are required.)
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The key range values for this User Data Repository system already exists

Deleting a Key Range

Use this procedure to remove an existing pool key range record from the system.

You can only perform this task when logged into the Active Primary NOAMP. You must have permission to delete a UDR key range. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Configuration > Pool Spanning > UDR Key Range**.
   
   The UDR Key Range page appears.

2. Click to highlight the **UDR Key Range** record to delete, and click **Delete**. (**Delete** is not active if you don’t have permission to delete a UDR key range.)
A popup confirmation window appears.

3. Perform one of the following actions:

- Click **OK** to delete the record.
- Click **Cancel** to cancel the delete function and return to the UDR Key Range page.

After the delete process is complete, an **Info** option appears in the upper left corner. When clicked, the record’s delete status is displayed.

### Ud Client

This menu provides access to GUI pages that control the Ud client feature. This feature uses the Ud interface, a database access protocol that defines and controls connections to communicate between the UDR system (the UD client) and a third-party subscriber database (stored on a Ud server). UDR uses both LDAP (an access protocol) and SOAP (a messaging protocol) to communicate with this subscriber database - LDAP to query the database for subscriber information, and SOAP to subscribe to the database and be notified of subscriber changes.

GUI options on this menu include:

- **Ud Client Options**: controls how the Ud client feature works when provisioning or signaling traffic is received.
- **Ud Remote Server Configuration**: configures Ud server connection details.
- **Ud Client Key Details**: configures the LDAP search key mapping details and their mapping to internal subscriber profile fields.
- **Ud Client Attribute Map SEC**: defines how subscriber attributes stored in the Ud server database are mapped to subscriber profile fields stored in the user data repository.

As part of the Ud client feature, the **Maintenance > Ud Client > Connection Status** page displays the status of the LDAP and SOAP connections between the Ud client and Ud server. These statuses are only displayed if the Ud client feature is enabled and Ud remote server configuration has been performed. If the SOAP connection is disabled, the only information that appears on this page for the SOAP connection is the admin state of Disabled. The connection status information is refreshed each time this page is accessed. This page also allows the LDAP and SOAP connections to be enabled or disabled once the Ud client feature is enabled and configured.

### Ud Client Options

The Ud Client Options page is used to specify values for various global parameters that guide the behavior of the Ud client feature. Unless noted for the field on the GUI page, any changes to Ud client options take effect immediately.

### Ud Client Options Elements

This table describes the fields on the Ud Client Options page.
<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ud Client Enabled</td>
<td>Whether or not the Ud client feature is enabled. When check marked (enabled), if an Sh request is received and the subscriber is not found in the UDR database, the LDAP protocol is used to search for this subscriber on the Ud server.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Unchecked</td>
</tr>
<tr>
<td>Ud SOAP Interface Client Mode Enabled</td>
<td>Whether or not the Ud SOAP (client mode) interface is enabled; when check marked, if a subscriber is retrieved from the Ud server, the SOAP protocol is used to subscribe to and be notified of subscriber updates on the Ud server.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Checked</td>
</tr>
<tr>
<td>Ud SOAP Interface Server Mode Enabled</td>
<td>Whether or not the Ud SOAP interface (server mode) is enabled. when check marked, the Ud Client behaves as a SOAP server and a new connection from the Ud server is accepted when new SOAP notifications are sent to the client.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Unchecked</td>
</tr>
<tr>
<td>Send Ud SOAP Subscribe Request</td>
<td>Whether or not a SOAP subscribe request is sent after a subscriber is retrieved from the Ud server.</td>
<td>Format: Check box Range: Checked, Unchecked Default: Checked</td>
</tr>
<tr>
<td>Network LAN Timeout</td>
<td>Maximum amount of time to wait for a response from the Ud server before timing out a SOAP or LDAP request when the connection is made over a LAN.</td>
<td>Format: Integer Range: 10-30000 milliseconds Default: 200</td>
</tr>
<tr>
<td>Network WAN Timeout</td>
<td>Maximum amount of time to wait for a response from the Ud server before timing out a SOAP or LDAP request when the connection is made over a WAN.</td>
<td>Format: Integer Range: 10-30000 milliseconds Default: 400</td>
</tr>
<tr>
<td>SOAP Subscribe Request Expiry Time Period</td>
<td>Amount of time after which the subscription to notifications expires. A value of 0 indicates there is no expiration.</td>
<td>Format: Integer Range: 0-1000000000 seconds Default: 0</td>
</tr>
</tbody>
</table>
Table 4-14  (Cont.) Ud Client Options Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOAP Subscribe Re-subscribe Period</td>
<td>Amount of time that elapses before a re-subscribe request is sent to the Ud server. By default, this feature is turned off (a value of 0 indicates no re-subscribe requests are sent).</td>
<td>Format: Integer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-1000000000 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 0</td>
</tr>
<tr>
<td>LDAP Search Re-read Period</td>
<td>Amount of time that elapses before a subscriber read request is resent to the Ud server. By default, this feature is turned off (a value of 0 indicates no re-read requests are resent).</td>
<td>Format: Integer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-1000000000 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 0</td>
</tr>
<tr>
<td>LDAP Retry Period No Connection</td>
<td>Amount of time to wait before again attempting to establish LDAP connections with the Ud server. By default, this feature is set to 5 seconds.</td>
<td>Format: Integer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-1000000000 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 5</td>
</tr>
<tr>
<td>LDAP Retry Period Link Busy</td>
<td>Amount of time to wait before sending another request when a busy error is returned to an LDAP request. By default, this feature is set to 10 seconds.</td>
<td>Format: Integer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-1000000000 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 10</td>
</tr>
<tr>
<td>SOAP Retry Period No Connection</td>
<td>Amount of time to wait before again attempting to establish a SOAP connection with the Ud server. By default, this feature is set to 5 seconds.</td>
<td>Format: Integer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-1000000000 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 5</td>
</tr>
</tbody>
</table>

Editing Ud Client Options

Use this procedure to customize timing settings and values that affect communications between the Ud client and the Ud server.

You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Ud Client > Ud Client Options.
   The Ud Client Options page appears.

2. Modify the LDAP and/or SOAP messaging values to customize message processing for your system.
   For a detailed explanation about the options and valid input for these fields, see Ud Client Options Elements.

3. Click Apply.
If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.

If the page contains any values that are not valid or are out of range, an error message appears.

**Ud Remote Server Configuration**

This GUI option is used to configure connection details needed for connecting to the Ud server. Up to three different LDAP/SOAP pairs can be configured, but only the primary connection is required when the Ud client feature is enabled.

**Ud Remote Server Configuration Elements**

This table describes the fields on the Ud Remote Server Configuration page.

<table>
<thead>
<tr>
<th>Table 4-15 Ud Remote Server Configuration Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
</tbody>
</table>
| Ud Remote Server Name | Name of the Ud server that contains the LDAP database. This field is required. | Format: Alphanumeric string  
Range: 1-32 characters  
Default: Blank |
| Primary Connection    | Primary configured endpoints for the LDAP and SOAP servers. Only the Primary Connection fields are required when the Ud client feature is enabled. Secondary Connection and Tertiary Connection are optional. | Host: Address (in IPv4 format) of the SOAP/LDAP primary connection.  
Format: IPv4 address format - dotted decimal  
Range: Standard IPv4 address format xxx.xxx.xxx.xxx  
Default: Blank |
|                       | Port: Port number used to connect to the SOAP/LDAP primary connection. | Format: Integer  
Range: 0-65535  
LDAP Default: 389, SOAP Default: 8080 |
|                       | Path: Universal resource identifier (URI) path for SOAP primary connection. This field is optional. | Format: String  
Range: Characters valid for HTTP path string  
Default: Blank |
|                       | Type: Network connection type to the LDAP/SOAP primary connection can be either WAN or LAN. To change the network response wait time for a WAN or LAN, access the Network LAN Timeout/ Network WAN Timeout field on the UDR > Configuration > Ud Client > Ud Client Options page. | Format: Dropdown menu  
Range: WAN, LAN  
Default: WAN |
<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| Secondary Connection | Secondary configured endpoints for the LDAP and SOAP servers; only becomes enabled if all mandatory fields for a Primary Connection have been entered.                                      | Format: IPv4 address format - dotted decimal  
Range: Standard IPv4 address format  
xxx.xxx.xxx.xxx  
Default: Blank  

Port: Port number used to connect to the SOAP/LDAP secondary connection.  
Format: Integer  
Range: 0-65535  
LDAP Default: 389, SOAP Default: 8080  

Path: Universal resource identifier (URI) path for SOAP secondary connection. This field is optional.  
Format: String  
Range: Characters valid for HTTP path string  
Default: Blank  

Type: Network connection type to the LDAP/SOAP secondary connection can be either WAN or LAN. To change the network response wait time for a WAN or LAN, access the Network LAN Timeout / Network WAN Timeout field on the UDR > Configuration > Ud Client > Ud Client Options page.  
Format: Dropdown menu  
Range: WAN, LAN  
Default: WAN |
| Tertiary Connection | Tertiary configured endpoints for the LDAP and SOAP servers; only becomes enabled if all mandatory fields for a Secondary Connection have been entered.                                             | Format: IPv4 address format - dotted decimal  
Range: Standard IPv4 address format  
xxx.xxx.xxx.xxx  
Default: Blank  

Port: Port number used to connect to the SOAP/LDAP tertiary connection.  
Format: Integer  
Range: 0-65535  
LDAP Default: 389, SOAP Default: 8080  

Path: Universal resource identifier (URI) path for SOAP tertiary connection. This field is optional.  
Format: String  
Range: Characters valid for HTTP path string  
Default: Blank |
### Table 4-15  (Cont.) Ud Remote Server Configuration Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: Network connection</td>
<td>Type: Network connection type to the LDAP/SOAP tertiary connection can be either WAN or LAN. To change the network response wait time for a WAN or LAN, access the Network LAN Timeout/Network WAN Timeout field on the UDR &gt; Configuration &gt; Ud Client &gt; Ud Client Options page.</td>
<td>Format: Dropdown menu&lt;br&gt;Range: WAN, LAN&lt;br&gt;Default: WAN</td>
</tr>
<tr>
<td>LDAP Authentication Type</td>
<td>Process used to confirm the identity of clients requesting access to the server. Anonymous does not require a username or a password; Unauthenticated requires a valid username but no password; Authenticated requires both a valid username and password to access the server.</td>
<td>Format: Dropdown menu&lt;br&gt;Range: Anonymous, Unauthenticated, Authenticated&lt;br&gt;Default: Anonymous</td>
</tr>
<tr>
<td>LDAP Authentication DN</td>
<td>SOAP server’s distinguished name (DN), used for identification purposes when attempting to bind to the LDAP server. This field is only accessible when LDAP Authentication Type is set to Unauthenticated or Authenticated.</td>
<td>Format: String&lt;br&gt;Range: 1-512 characters&lt;br&gt;Default: Blank</td>
</tr>
<tr>
<td>LDAP Authentication Password</td>
<td>SOAP server’s password, used for identification purposes when attempting to bind to the LDAP server. This field is only accessible when LDAP Authentication Type is set to Authenticated.</td>
<td>Format: String&lt;br&gt;Range: 1-64 characters&lt;br&gt;Default: Blank</td>
</tr>
<tr>
<td>SOAP Front End ID</td>
<td>Value in the SOAP subscribe request (frontEndID) that identifies the UDR to the Ud server. If Ud SOAP Interface Enabled is unchecked on the Ud Client Options page then this field is not needed.</td>
<td>Format: String&lt;br&gt;Range: 1-64 characters&lt;br&gt;Default: Blank</td>
</tr>
</tbody>
</table>
### Table 4-15  (Cont.) Ud Remote Server Configuration Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOAP Service Name</td>
<td>Value in the SOAP subscribe request (serviceName) that identifies the UDR application sending the request to the Ud server. The serviceName is copied from the subscribed request or is pre-configured in the Ud server. This field is optional. If Ud SOAP Interface Enabled is unchecked on the Ud Client Options page then this field is not needed.</td>
<td>Format: String</td>
</tr>
<tr>
<td>Number of Connections</td>
<td>Number of LDAP and SOAP connections to create between UDR and the Ud server. These fields are required.</td>
<td>Format: Integer</td>
</tr>
</tbody>
</table>

**Editing Ud Remote Server Configuration**

Use this procedure to define or change Ud server connection details. These details must be defined before the status of LDAP and SOAP connections can appear on the Main Menu > UDR > Maintenance > Ud Client > Connection Status GUI page.

---

**Note:** You must disable existing LDAP/SOAP connections on the Ud Client > Connection Status page before editing LDAP/SOAP connection-related information. Once the connection changes have been made and saved here, re-enable connections on the Connection Status page.

You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select **UDR > Configuration > Ud Client > Ud Remote Server Configuration**.
   
The Ud Remote Server Configuration page appears.

2. Modify the options you want to change by entering information in the appropriate fields.
   
   For a detailed explanation about the options and valid input for these fields, see Ud Remote Server Configuration Elements.

3. Click **Apply**.
   
   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.
   
   If the page contains any values that are not valid or are out of range, an error message appears.
Ud Client Key Details

Note: A thorough understanding of the LDAP protocol is required to understand the terminology and enter values on this page.

This GUI option is used to map keys from Sh requests to subscriber keys in the Ud server database when performing an LDAP search. The key value in Ud Attribute Name is prepended onto the value in the Base DN (when a filter is not defined) to form the search distinguished name (DN), which is used when searching for a subscriber in the LDAP database. If a search filter is required as well or instead of the Ud Attribute Name, this is defined in Filter and may also include a key token name in the string (such as "$(imsi)"). (When a value is defined in the Filter field, the Ud Attribute Name is not prepended onto the Base DN.)

One to three keys can be defined on this page. A minimum of one key must be configured to use the Ud client feature. Note that the order in which keys are defined on this page affects which key is used. When more than one key matches a subscriber during the LDAP search, the first matching key found in the order defined on this page is used. For example, this is used when re-subscribing for a subscriber. There is no triggering Sh request to initiate this, a check if performed periodically. A subscriber is read, the keys defined in the subscriber profile are checked with the configured key details, and the first matching defined key is used to initiate the re-subscribe request.

Ud Client Key Details Elements

This table describes the fields on the Ud Client Key Details page.

<table>
<thead>
<tr>
<th>Table 4-16  Ud Client Key Details Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
<tr>
<td>Profile Field Name</td>
</tr>
<tr>
<td>Element</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Ud Attribute Name</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
| Base DN          | Base distinguished name (DN) defines where to search in the LDAP database for subscriber/pool data. The first **Base DN** field is required. Use LDAP distinguished name format. For example: `ou=communications, o=oracle, c=us`. Each attribute-value is separated by a comma and an optional space. Note that the order in which these attribute-value pairs are listed affects where the search occurs in the LDAP database. Following are the attributes strings that can be used here:  
- **CN**: commonName  
- **L**: localityName  
- **ST**: stateOrProvinceName  
- **O**: organizationName  
- **OU**: organizationalUnitName  
- **C**: countryName  
- **STREET**: streetAddress  
- **DC**: domainComponent  
- **UID**: userId                                                                                                                                                                                                                                                                                                                                                                                 | Format: String           |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Range: 1-512 characters  |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Default: Blank           |
Table 4-16 (Cont.) Ud Client Key Details Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Scope</td>
<td>Level within the LDAP database to perform the search:</td>
<td>Format: Dropdown menu</td>
</tr>
<tr>
<td></td>
<td>• <em>Base Object</em> - search in entries only at the search base DN level.</td>
<td>Range: Base Object, One Level, Subtree</td>
</tr>
<tr>
<td></td>
<td>• <em>One Level</em> - search only in entries immediately below the search base DN level.</td>
<td>Default: Subtree</td>
</tr>
<tr>
<td></td>
<td>• <em>Subtree</em> - search in entries at the base DN level and in all entries below it.</td>
<td></td>
</tr>
<tr>
<td>Table 4-16  (Cont.) Ud Client Key Details Elements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Element</strong></td>
<td><strong>Description</strong></td>
<td><strong>Data Input Notes</strong></td>
</tr>
</tbody>
</table>
| Filter | LDAP/SOAP search filter used to define additional criteria used to identify entries in a search request. Filter coding can be complex and can include various punctuation characters to represent different types of filters. This field may be used to enter the subscriber/pool key to search subscriber records. This field is optional. For each filter operation, the basic format is beginning and ending with parenthesis, then the attribute description, the operation (i.e., =, <, >, ~), and the value to compare. For example, (imsi=$(imsi)) can be used to map an LDAP attribute of imsi to the Profile Field Name. Valid key/token values include $(imsi), $(msisdn), and $(nai). The key/token name is validated against the Profile Field Name used, so you cannot set this field to MSISDN and use the token $(imsi) in the filter (the value would need to be $(msisdn)). More than one filter operation can be entered here to provide more complex filtering operations. For example, ! is used for a NOT filter, & used for an AND filter, and | is used for an OR filter. For example: (! (attr1=a) (attr2=b) (attr3=c)) In this example, attributes 1, 2, and 3 must all evaluate to true for the subscriber/pool record to be a match. | Format: String  
Range: 1-256 characters  
Default: Blank |
Table 4-16  (Cont.) Ud Client Key Details Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| Key -> Ud | If the key value in the LDAP database differs from the key value in the Sh request, use regular expressions in these fields to transform the UDR database value so that these two values match. For example, if an MSISDN value in the Sh request contains the country code (447771888777) and the LDAP database stores the MSISDN value with the internally dialed number instead (07771888777), you would enter (44) (.*) in Transform Pattern and 0$2 in Replace Pattern to remove 0 and add 44 to the beginning of the stored MSISDN number. | Format: String - regular expression format  
Range: 1-32 characters  
Default: Blank                                                                                           |
| Ud -> Key | If the key value in the SOAP request differs from the key value in the LDAP database, use regular expressions in these fields to define which part of the SOAP request value is to be replaced. In the example above, you would enter $2 in Transform Pattern and (44) (.*) in Replace Pattern to remove 44 and add 0 to the beginning of the SOAP request's MSISDN number. | Format: Integer - regular expression format  
Range: 1-32 characters  
Default: Blank                                                                                           |

Editing Ud Client Key Details

Use this procedure to define and edit values used in the LDAP search process. These values are required before you can connect to the Ud server and perform a search in the LDAP database.

You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Ud Client > Ud Client Key Details.

The Ud Client Key Details page appears.

2. Select the subscriber/pool key you want to use for your LDAP searches from the Profile Field Name dropdown menu: IMSI, MSISDN, or NAI.

For a detailed explanation about the options and valid input for fields on this page, see Ud Client Options Elements.
3. Enter the attribute name used in the LDAP database on which to search for subscriber/pool data in Ud Attribute Name. This value is added to the beginning of the search string used in the LDAP search.

4. Enter the Base DN value to use in your LDAP database search. This value is added to the end of the search string.

5. Specify the level in the LDAP database where the search will occur in Search Scope: Base Object, One Level, or Subtree.

6. Enter a search filter to further refine the LDAP search in Filter. This field can also be used to define the subscriber/pool key used in the search. This field is optional.

7. If subscriber/pool data must be transformed before being written to the user data repository, use the Transform Pattern and/or Replace Pattern fields.

8. If more than one subscriber/pool key is needed for LDAP searches, enter data for a second and third key, as needed.

9. Click Apply.

   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.

   If the page contains any values that are not valid or are out of range, an error message appears.

Ud Client Attribute Map SEC

This GUI option is used to define how a subscriber's attributes stored on the Ud server are mapped to the subscriber profile attributes in UDR's subscriber entity configuration (SEC). From this page, you can view, edit, or delete existing attribute maps or add a new map. Each record maps one attribute.

When adding a new attribute map, an optional regular expression formatting string can be defined that formats the attribute value received from the Ud server. The resulting value is stored in the subscriber profile field.

Note: Connection details on the Ud Remote Server Configuration page must be configured before a map can be defined from the Ud Client Attribute Map SEC page.

Ud Client Attribute Map SEC Elements

This table describes the fields on the Ud Client Attribute Map SEC page.

<table>
<thead>
<tr>
<th>Table 4-17 Ud Client Attribute Map SEC Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
</tbody>
</table>
| Ud Attribute Name | Field name on the Ud server to be associated with the subscriber profile field. | Format: String  
Range: 1-64 characters  
Default: Blank |
| Profile Field Name | Subscriber profile field name to be associated with the field name on the Ud server.  
All subscriber profile fields defined in the SEC are listed here. | Format: Dropdown menu  
Range: All subscriber profile fields in SEC  
Default: --Select-- |
Table 4-17  (Cont.) Ud Client Attribute Map SEC Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| Formatting String      | Regular expression to be applied to retrieved LDAP attribute value before writing to the selected subscriber profile field. This field is optional. An example of how to use this field: the Ud Attribute Name of serviceList has the value of 9191234567 on the Ud server. The related Profile Field Name is called Entitlement in the SEC. Only the first three characters of this string are needed in the UDR database, so the regular expression of ^ (. (0,3)) .*$ is entered in the Formatting String field; when the attributes of the two databases are mapped, the Entitlement field in the UDR database is populated with the first three digits of this field’s value on the Ud server, or 919. | Format: String  
Range: 1-64 characters  
Default: Blank |

Viewing Ud Client Attribute Maps

Use this procedure to view a list of existing Ud client attribute maps defined on this User Data Repository system.

You can perform this task when logged into an NOAMP. Note that this menu option only appears if you have permission to view pool network configurations. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Ud Client > Ud Client Attribute Map SEC.

   The Ud Client Attribute Map SEC page appears.

2. To view a subset of attribute maps, use the Filter option in the upper left corner to define the attribute maps you want displayed.

   The list of configured attribute maps is displayed.

Adding a Ud Client Attribute Map

Use this procedure to map an attribute name in the LDAP database to a subscriber profile field. More than one attribute name can be mapped to a specific subscriber profile field by entering a regular expression in the Formatting String field.

You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.
1. Select **UDR > Configuration > Ud Client > Ud Client Attribute Map SEC**.
   The Ud Client Attribute Map SEC page appears.

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

3. Enter the name of the LDAP database attribute to be mapped in **Ud Attribute Name**.
   For a detailed explanation of the fields on this page, see **Ud Client Attribute Map SEC Elements**.

4. Select the profile field name that corresponds to this attribute from the **Profile Field Name** dropdown menu.

5. If specific processing needs to be applied to the retrieved LDAP attribute before storing the value, enter the related **regular expression** in the **Formatting String** field. This field is useful when an LDAP attribute name with more than one spelling needs to be mapped to the same profile field.

6. Click **Apply**.
   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.
   If the page contains any values that are not valid or are out of range, an error message appears.

**Editing a Ud Client Attribute Map**

Use this procedure to change settings in an existing attribute map.
You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Configuration > Ud Client > Ud Client Attribute Map SEC**.
   The Ud Client Attribute Map SEC page appears, displaying the list of existing attribute maps.

2. Click to highlight the attribute map to edit.

3. Click **Edit**.
   The Edit page appears.

4. Modify the mapping settings you want to change by changing information in the appropriate fields.
   For a detailed explanation about the options and valid input for these fields, see **Ud Client Attribute Map SEC Elements**.

5. Click **Apply**.
   If field validations succeed, the changes are saved and you remain on the same page. A successful update message appears.
If the page contains any values that are not valid or are out of range, an error message appears.

Deleting a Ud Client Attribute Map

Use this procedure to delete an existing Ud client attribute map.

You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Configuration > Ud Client > Ud Client Attribute Map SEC.

   The Ud Client Attribute Map SEC page appears.

2. Click to highlight the configuration to delete, and click Delete. (The Delete button is not active if you don’t have permission to delete an attribute map.)

   A popup confirmation window appears.

3. Perform one of the following actions:

   • Click OK to delete the record.

   • Click Cancel to cancel the delete function and return to the Ud Client Attribute Map SEC page.

After the delete process is complete, an Info option appears in the upper left corner. When clicked, the record’s delete status is displayed.
Subscriber Entity Configuration

A subscriber entity configuration (SEC) is a database that contains an XML data model used for processing subscriber data. A data model defines which XML elements are allowed in an entity and defines how these elements relate to one another.

The SEC defines the type and format of the data that can be stored and processed in the subscriber profile repository. The SEC comprises the pre-configured entities that come with the system as well as any user-defined entities.

The Subscriber Entity Configuration menu options allow you to add, edit, and delete entities; change entity attributes; define and change transparent entity structure; and perform mappings between entities and interface entities. Changes implemented from these menu options are written to the SEC and take effect immediately.

The options that appear on this menu vary based on the type of server you are logged into and the permissions assigned to your group. If you do not see the menu option you need, make sure you are logged into the appropriate type of server and ask your administrator to make sure the group your user ID belongs to has the appropriate permissions.

Entity

The Entity page is used to add, edit, and delete entities from the subscriber entity configuration (SEC). An entity is a type of subscriber data stored in XML format, such as quota, state, or profile of a subscriber.

Two types of entities can be defined: opaque and transparent. Opaque entity elements cannot be individually read or edited. Transparent entity elements and values inside those elements can be read and edited. (These values can be edited with SOAP/REST provisioning software.)

When defining a new transparent entity, the following must be defined (in the order listed) using options on the Transparent Entity menu before you can save the new entity:

1. Field set (if using): Adding a field set
2. Base field set: Adding a base field set
3. Definition: Adding a definition

Note that the system comes pre-configured with eight entities; each is pre-defined as either opaque or transparent:

- DynamicQuota (opaque)
- PoolDynamicQuota (opaque)
- PoolProfile (transparent)
• PoolQuota (transparent)
• PoolState (opaque)
• Profile (transparent)
• Quota (transparent)
• State (opaque)

These pre-defined entities come preloaded with default configuration and these can be customized if needed.

Additionally, an entity can be pooled with other entities for the purpose of pool processing. An entity that is not pooled applies to one subscriber; an entity that is pooled can be shared by multiple subscribers.

**Note:** Once an entity is defined, at least one interface entity map entry must exist in order for the entity data to be accessed using provisioning or network interfaces. One interface entity map entry is required per interface.

**Entity elements**

Use the Entity page to manage entities. This table describes fields on this page.

**Table 5-1 Subscribers Elements**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entity Name</td>
<td>Name of the entity. Note that this value cannot be changed once a new entity is saved.</td>
<td>Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number Range: 1-32 characters Default: Blank</td>
</tr>
<tr>
<td>Entity Type</td>
<td>Entity type can be opaque or transparent. When opaque is selected, the <strong>Transparent Entity Definition</strong> field is not accessible.</td>
<td>Format: pulldown list Range: Opaque, Transparent Default: Opaque</td>
</tr>
<tr>
<td>Transparent Entity Definition</td>
<td>Name of the transparent entity definition (this field associates a base field set and field set(s) (when used) with an entity). This field can be accessed only when the <strong>Entity Type</strong> is specified as <strong>Transparent</strong>.</td>
<td>Format: pulldown list Range: Select value from list Default: Blank</td>
</tr>
<tr>
<td>Pooled</td>
<td>Check box that indicates whether or not an entity is a pooled entity.</td>
<td>Format: Check box Range: Checked, unchecked Default: Unchecked</td>
</tr>
</tbody>
</table>
Table 5-1 (Cont.) Subscribers Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Register ID</td>
<td>Upon creation, every entity is automatically assigned a Unique register identity. This value is used internally, and cannot be edited.</td>
<td>Format: Numeric</td>
</tr>
</tbody>
</table>

Viewing entities

All possible entities configured in the database can be viewed from this page. There is no limitation to the number of entities that can be configured.

You can perform this task when logged into an NOAMP.

1. Select UDR > Subscriber Entity Configuration > Entity.

The Entity page appears.

The list of entities and their entity type, along with their association with transparent entity definition, pooled, and registered ID, is displayed.

**Note:** To change the order of the records in a column (from descending to ascending or vice versa), click the header of that column.

Adding an entity

Follow these steps to add a new entity. Note that if you are adding a transparent entity, the field sets (when used), base field set, and definition being used in the entity must first be defined.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Entity.

   The Entity page appears.

2. Click Insert.

   The Entity [Insert] page appears.

3. Enter a unique Entity Name to associate with the entity.

4. Select the Entity Type from the pulldown menu. See Entity elements for more information on each field.

5. If an entity type of Transparent is selected, specify the type of Transparent Entity Definition.

6. Check mark Pooled if this is a pooled entity.

7. Perform one of the following:
   - Click OK to save the permissions and return to the Entity page.
• Click **Apply** to save the permissions and remain on the Insert page.
• Click **Cancel** to return to the Entity page without saving the changes.

If **OK** or **Apply** is clicked and any of the following exist, an error message appears:
• Any required field is empty; no value was entered or selected
• The entry in any field is not valid (wrong data type or out of the valid range)
• The Entity Name is not unique; it already exists in the entity list

**Editing an entity**

Follow these steps to modify an existing entity, including any of the eight pre-defined entities. The four pre-defined opaque entities can be changed to transparent if provisioning changes need to be made to the values within these entities.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select **UDR > Subscriber Entity Configuration > Entity**.

   The Entity page appears.

2. Click on the entity to be edited.

   The selected entity displays in green.

3. Click **Edit**.

   The Entity [Edit] page appears.

4. Change existing entity values, as needed. The only field that cannot be changed for an existing entity is the Entity Name; to change this field, the existing entity must be deleted and a new one created. See **Entity elements** for more information on each field.

5. Perform one of the following:
   • Click **OK** to save the permissions and return to the Entity page.
   • Click **Cancel** to return to the Entity page without saving the changes.

If **OK** is clicked and any of the following exist, an error message appears:
• Any required field is empty; no value was entered or selected
• The entry in any field is not valid (wrong data type or out of the valid range)
• The Entity Name is not unique; it already exists in the entity list

**Deleting an entity**

Follow these steps to delete an entity. You can only perform this task when logged into the Active Primary NOAMP. Note that an entity cannot be deleted if it is referenced by an Interface Entity Map.

---

**Note:** Global Data Delete permission is required for this function.
1. Select UDR > Subscribing Entity Configuration > Entity.

   The Entity page appears.

2. Click on the entity to be deleted.

   The selected entity displays in green.

3. Click Delete.

   A popup confirmation window appears.

4. Perform one of the following actions:
   - Click OK to delete the permission record.
   - Click Cancel to cancel the delete function and return to the Entity page.

Once the delete process is complete, an Info option appears in the upper left corner. When clicked, the record’s delete status is displayed.

**Transparent Entity**

The Transparent Entity menu contains options that allow you to add, edit, and delete the internal structure elements that compose transparent entities: field sets, base field sets, and definitions.

A transparent entity is a type of subscriber data stored in XML format in the subscriber entity configuration (SEC) (e.g., quota, profile, or dynamic quota element) and whose internal structure can be read and changed by UDR (in other words, transparent means you can manipulate fields and rows). The data can be changed using SOAP/REST provisioning software.

There are four pre-defined transparent entities that come with the system:

- PoolProfile
- PoolQuota
- Profile
- Quota

These pre-defined entities come preloaded with default configuration and these can be customized if needed.

Note that before a new transparent entity can be added (using the Adding an entity procedure), the field sets (if used), base field set, and definition to be used within that entity must first be defined.

**Field Set**

The Field Set page is used to add, edit, and delete field sets from the subscriber entity configuration (SEC). A field set is an XML element that contains a group of related XML elements (or fields). Each field set is associated with a specific attribute that makes that field set unique. For example, the pre-defined pool quota field set has an Instance Identifier Attribute called name and contains fields specific to this pool quota. This field set can appear multiple times in the same entity as long as each field set has a unique name value (i.e., the first field set has a name of John, the second field set has
a name of Sarah, and the third field set has a name of Harold). A field set also defines each field’s properties/validation rules and the order in which the fields are stored. Note that the system comes pre-configured with six field sets:

- Dynamic Quota (DynamicQuotaV1)
- Pool Dynamic Quota (PoolDynamicQuotaV1)
- Pool Quota (PoolQuotaV3)
- Pool State Property (PoolStatePropertyV1)
- Quota (QuotaV3)
- State Property (StatePropertyV1)

These field sets can be modified and/or new field sets can be added as needed.

**Note:** A transparent entity field set can be defined but cannot be accessed until it is referenced by a Transparent Entity Base Field Set, or referenced by another Transparent Entity Field Set.

### Field Set elements

Use the Field Set page to manage transparent entity field sets. Table 5-2 describes the elements that can be configured for a field set.

**Table 5-2  Field Set Elements**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Set Name</td>
<td>Name of the transparent entity field set.</td>
<td>Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number Range: 1-64 characters Default: Blank</td>
</tr>
<tr>
<td>Element String</td>
<td>XML element name under which defined fields reside.</td>
<td>Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number Range: 1-64 characters Default: Blank</td>
</tr>
</tbody>
</table>
Table 5-2   (Cont.) Field Set Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatable</td>
<td>Indicates that the field set is a repeatable element. When multiple instances of data exist in an entity, a repeatable element contains the data fields for a specific instance of an entity. When this element is checked, the Instance Identifier Attribute element is enabled.</td>
<td>Format: Checkbox</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Unchecked</td>
</tr>
<tr>
<td>Instance Identifier Attribute</td>
<td>XML attribute instance associated with a repeatable element. This value indicates which repeatable element is being selected. This element is enabled only if the Repeatable element is checked.</td>
<td>Format: String - valid characters are alphanumeric and underscore; if enabled, must contain at least one alphabetic or numeric character, and cannot start with a number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
</tbody>
</table>

In the lower part of the Field Set page, use the Add Field button to add a data field record to this field set. Table 5-3 describes the elements that can be configured for each data field record.

Table 5-3   Field Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element String</td>
<td>The name of the XML element defined in the field set. If Field Set is selected from the Type dropdown list, then the Element String value for the field is automatically populated with the Element String value of the field set selected from the Field Set Name dropdown list.</td>
<td>Format: String; if the parent Base Field Set is Element Based, the format of Element String is alphanumeric and underscore, must contain at least one alphabetic or numeric character, and cannot start with a number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Type</td>
<td>Field type. If Field Set is selected, then the Min/Max Value, Updatable, Resettable, Reset Value, Defaultable, DefaultValue, and Special Format elements are disabled. If Regex is selected and Resettable or Defaultable is check marked, the value in the associated element (Reset Value or Default Value) is validated using the regex expression in the Special Format element.</td>
<td>Format: Dropdown list</td>
</tr>
<tr>
<td>Field Set Name</td>
<td>Previously defined transparent entity field set where the field will be assigned. Note that a specific Field Set Name can only be referenced once by another field set or base field set. This element is enabled only if Field Set was selected from the Type dropdown list.</td>
<td>Format: Dropdown list</td>
</tr>
<tr>
<td>Min Value</td>
<td>The minimum field value allowed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td>Max Value</td>
<td>The maximum field value allowed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td>Updatable</td>
<td>Indicates that the value can be sent in an update request.</td>
<td>Format: Check box</td>
</tr>
<tr>
<td>Resettable</td>
<td>Sets the value to the value in the Reset Value element if a reset operation is performed.</td>
<td>Format: Checkbox</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Reset Value</td>
<td>Value to set the field to if a reset operation is performed. This element is enabled only if the Resettable element is checked. Note that if a Type of RegEx is specified, this value is validated using the regex expression specified in the Special Format element.</td>
<td>Format: Numeric Range: 0-4294967295 Default: Blank</td>
</tr>
<tr>
<td>Defaultable</td>
<td>Sets the value to the value in the Default Value element if a value is not specified in the insert request.</td>
<td>Format: Checkbox Range: Checked, unchecked Default: Unchecked</td>
</tr>
<tr>
<td>Default Value</td>
<td>Value to set the field to if a value is not specified in the insert request. This element is enabled only if the Defaultable element is checked. Note that if a Type of RegEx is specified, this value is validated using the regex expression specified in the Special Format element.</td>
<td>Format: Numeric Range: 0-4294967295 Default: Blank</td>
</tr>
<tr>
<td>Min Occur</td>
<td>Indicates if the field is mandatory or optional. If the value is 0, then the field does not have to exist. If the value is 1 or more, then the field is mandatory, and the specified number of instances must exist for the Entity to be valid. Note that when Defaultable is check marked, this value must be either 0 or 1.</td>
<td>Format: Numeric Range: 0-4294967295 Default: Blank</td>
</tr>
<tr>
<td>Max Occur</td>
<td>Indicates the maximum number of occurrences of the field. A value of NO_LIMIT indicates an unlimited number of occurrences.</td>
<td>Format: Numeric Range: 0-4294967295 Default: Blank</td>
</tr>
</tbody>
</table>
Table 5-3  (Cont.) Field Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| Special Format  | This element is a regular expression, conforming to the Perl regular expression syntax. This value must match the entire regular expression to be considered valid. This value can be used to apply advanced/special field validation if required (i.e., validation of the value in the Default Value or Reset Value element). | Format: String  
Range: 1-64 characters  
Default: Blank |

Viewing field sets

All possible field sets configured in the database can be viewed from this page. There is no limitation to the number of field sets that can be configured.

You can perform this task when logged into an NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Field Set.

   The Field Set page appears.

The list of transparent entity field sets is displayed.

Note: To change the order of the records in a column (from descending to ascending or vice versa), click the header of that column.

Adding a field set

Use this procedure to add a new field set. You can only perform this task when logged into the Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Field Set.

   The Field Set page appears.

2. Click Insert.

3. Enter a unique Field Set Name to associate with the entity.

4. Enter a unique Element String for the XML element name.

5. If this field set is repeatable, check mark Repeatable and enter an XML attribute instance identifier.

6. Click Add Field to add a data field record to associate with this transparent entity field set, and then enter data for the record. At least one data field record must be associated with a transparent entity field set or an error will occur when you try to save the field set. See Field set elements for more information about each variable element.
7. After all needed fields have been added, perform one of the following:
   - Click **OK** to save the permissions and return to the Field Set page.
   - Click **Cancel** to return to the Field Set page without saving the changes.

If **OK** is clicked and any of the following exist, an error message appears:
   - Any required field is empty; no value was entered or selected
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The field set name is not unique; it already exists in the field set list

**Editing a field set**

Use this procedure to update the settings for an existing field set.

1. Select **UDR > Subscriber Entity Configuration > Transparent Entity > Field Set**.
   The Field Set page appears.

2. Click to highlight the field set record to edit, and click **Edit**.
   The Field Set [Edit] page appears.

3. Modify the settings for this field set, as needed. Note that at least one data field record must be associated with this transparent entity field set. For more information about the variable elements on this page, see Field set elements.

4. Perform one of the following:
   - Click **OK** to save the changes and return to the Field Set page.
     If field validations succeed, the connection is saved.

     If **OK** is clicked and any of the following conditions exist, an error message appears:
     - If the entry in any field is not valid or are out of range
     - If a required field is empty (not entered)

**Copying a field set**

Use this process to create a new field set from an existing field set. This capability can save time setting up a new field set when it has identical or similar fields specified to an existing field set.

1. Select **UDR > Subscriber Entity Configuration > Transparent Entity > Field Set**.
   The Field Set page appears.

2. Click to highlight the field set to copy, and click **Copy**.
   The Field Set [Copy] page appears.

3. Enter a unique **Field Set Name** and **Element String** to associate with this field set.
4. Modify the remaining settings for this field set, as needed. Note that at least one
data field record must be associated with this transparent entity field set. For more
information about the variable elements on this page, see Field Set elements.

5. Click **OK** to save the changes and return to the Field Set page.

If field validations succeed, the field set is saved.

If any of the following conditions exist, an error message appears:

- If the entry in any field is not valid or are out of range
- If a required field is empty (not entered)

**Deleting a field set**

If a field set is referenced from any other field sets, you must first modify the
referencing field set to eliminate this reference before you are allowed to perform the
delete.

You can only perform this task when logged into the Active Primary NOAMP.

---

**Note:** Global Data Delete permission is required for this function.

1. Select **UDR > Subscriber Entity Configuration > Transparent Entity > Field Set.**

The Field Set page appears.

2. Click to highlight the field set to delete, and click **Delete.**

A popup confirmation window appears.

3. Perform one of the following actions:

   - Click **OK** to delete the permission record.
   - Click **Cancel** to cancel the delete function and return to the Field Set page.

Once the delete process is complete, an **Info** option appears in the upper left corner. When clicked, the record’s delete status is displayed.

**Base Field Set**

The Base Field Set page is used to add, edit, and delete base field sets from the
subscriber entity configuration (SEC). A base field set is the first XML element (also
called the root element) in an entity; it contains the entity’s version information (if
present in entity) and one or more fields/field sets. There is only one base field set per
entity.

Note that the system comes pre-configured with eight base field sets:

- DynamicQuota (SprDynamicQuotaV1BFS)
- PoolDynamicQuota (SprPoolDynamicQuotaV1BFS)
- PoolProfile (SprPoolProfileBFS)
- PoolQuota (SprPoolQuotaV3BFS)
The existing base field sets can be modified, and new base field sets can be added as needed.

**Note:** Once a base field set is defined it cannot be accessed until it is assigned to a *Transparent Entity Definition*.

### Base Field Set elements

Use the Base Field Set page to manage base field sets. Table 5-4 describes fields on this page.

**Table 5-4  Base Field Set Elements**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Field Set Name</td>
<td>Name of this Base Field Set Definition</td>
<td>Format: String - alphanumeric and underscore; must contain at least one letter or number, and cannot start with a number. Range: 1-64 characters. Default: Blank.</td>
</tr>
<tr>
<td>Element String</td>
<td>XML element name under which defined fields reside.</td>
<td>Format: String - alphanumeric and underscore; must contain at least one letter or number, and cannot start with a number. Range: 1-64 characters. Default: Blank.</td>
</tr>
<tr>
<td>Allow Versions</td>
<td>Indicates whether multiple versions of this entity are allowed.</td>
<td>Format: Checkbox. Range: Checked, unchecked. Default: Unchecked.</td>
</tr>
<tr>
<td>Version Identifier Element</td>
<td>The XML element name of the version identifier. This element is enabled only if the Allow Versions element is checked.</td>
<td>Format: String - alphanumeric and underscore; must contain at least one letter or number, and cannot start with a number. Range: 1-64 characters. Default: Blank.</td>
</tr>
</tbody>
</table>
Table 5-4  (Cont.) Base Field Set Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version Value</td>
<td>The version value of the XML blob associated with the base field set. This element is enabled only if the Allow Versions element is checked.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>XML Storage Format</td>
<td>Indicates whether the entity version is element based or field name based.</td>
<td>Format: Dropdown list</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Element Based, Field Name Based</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Element Based</td>
</tr>
</tbody>
</table>

In the lower part of the Base Field Set page, use the Add Field button to add a data field record to the base field set. Table 5-5 describes the elements that can be configured for each data field record.

Table 5-5  Base Field Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element String</td>
<td>XML element name under which defined fields reside. If Field Set is selected from the Type dropdown list, then this Element String value is automatically populated with the Element String value of the field set selected from the Field Set Name dropdown list.</td>
<td>Format: String - alphanumeric only; must contain at least one letter or number. String value can start with a number if XML Storage Format is Field Name Based, value cannot start with a number if XML Storage Format is Element Based. Range: 1-64 characters Default: Blank</td>
</tr>
<tr>
<td>Type</td>
<td>Field type. If Field Set is selected, then the Min/Max Value, Updatable, Resettable, Reset Value, Defaultable, Default Value, and Special Format elements are disabled. If RegEx is selected and Resettable or Defaultable is check marked, the value in the associated element (Reset Value or Default Value) is validated using the regex expression in the Special Format element.</td>
<td>Format: Dropdown list</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Integer, Regex, Field Set Default: Regex</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Field Set Name</td>
<td>Previously defined transparent entity field set where the field will be assigned. Note that a specific <strong>Field Set Name</strong> can be referenced only once by another field set or base field set. This element is enabled only if <strong>Field Set</strong> was selected from the <strong>Type</strong> dropdown list.</td>
<td>Format: Dropdown list</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Previously defined transparent entity field set</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Min Value</td>
<td>The minimum field value allowed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Max Value</td>
<td>The maximum field value allowed.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Updatable</td>
<td>Indicates that the field value can be sent in an update request.</td>
<td>Format: Checkbox</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Unchecked</td>
</tr>
<tr>
<td>Resettable</td>
<td>Sets the field value to the value in the <strong>Reset Value</strong> element if a reset operation is performed.</td>
<td>Format: Checkbox</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Unchecked</td>
</tr>
<tr>
<td>Reset Value</td>
<td>Value to set the field if a reset operation is performed. This element is enabled only if the <strong>Resettable</strong> element is checked. Note that this value is validated using the regex expression specified in the <strong>Special Format</strong> element.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Defaultable</td>
<td>Sets the field value to the value in the <strong>Default Value</strong> element if a value if not specified in the insert request.</td>
<td>Format: Checkbox</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Unchecked</td>
</tr>
</tbody>
</table>
Table 5-5  (Cont.) Base Field Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default Value</td>
<td>Value to set the field if a value is not specified in the insert request. This element is enabled only if the Defaultable element is checked. Note that this value is validated using the regex expression specified in the Special Format element.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Min Occur</td>
<td>Indicates if the field is mandatory or optional. If set to 0, then the field does not have to exist. If set to 1 or more, then the field is mandatory, and the specified number of instances must exist for the Entity to be valid.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Max Occur</td>
<td>Indicates the maximum number of occurrences of the field. A value of NO_LIMIT indicates an unlimited number of occurrences.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Special Format</td>
<td>This element is a regular expression conforming to the Perl regular expression syntax. This value must match the entire regular expression to be considered valid. This value can be used to apply advanced/special field validation if required (i.e., validation of the value in the Default Value or Reset Value element).</td>
<td>Format: String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-64 characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
</tbody>
</table>

Viewing base field sets

All possible base field sets configured in the database can be viewed from this page. There is no limitation to the number of base field sets that can be configured.

You can perform this task when logged into an Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Base Field Set.

   The Base Field Set page appears.

   The list of transparent entity base field sets is displayed.
Adding a base field set

Follow these steps to add a new base field set. You can only perform this task when logged into the Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Base Field Set.
   The Base Field Set page appears.
2. Click Insert.
3. Enter a unique Base Field Set Name to associate with the entity.
4. Enter a unique Element String for the XML element name.
5. If multiple versions of this entity are allowed, check mark Allow Versions and enter a Version Identifier Element and Version Value.
6. In XML Storage Format, specify if the entity version is element based or field name based.
7. Click Add Field to add a data field record to associate with this transparent entity base field set, and enter data for the record. At least one data field record must be associated with a transparent entity base field set or an error will occur when you try to save the base field set. See Base Field Set elements for more information on each variable element.
8. Once all needed fields have been added, perform one of the following:
   • Click OK to save the permissions and return to the Base Field Set page.
   • Click Cancel to return to the Base Field Set page without saving the changes.
   If OK is clicked and any of the following exist, an error message appears:
   • Any required field is empty; no value was entered or selected
   • The entry in any field is not valid (wrong data type or out of the valid range)
   • The base field set name is not unique; it already exists in the base field set list

Editing a base field set

Use this procedure to update the settings for an existing base field set.
You can only perform this task when logged into the Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Field Base Set.
   The Base Field Set page appears.
2. Click to highlight the base field set record to edit, and click Edit.
   The Base Field Set [Edit] page appears.
3. Modify the settings for this base field set, as needed. Note that at least one data field record must be associated with this transparent entity base field set. For more information about the variable elements on this page, see Base Field Set elements.

4. Click OK to save the changes and return to the Base Field Set page.

If field validations succeed, the connection is saved.

If OK is clicked and any of the following conditions exist, an error message appears:

- If the entry in any field is not valid or is out of range
- If a required field is empty (not entered)

## Copying a base field set

Use this process to create a base field set from an existing base field set. This capability can save time setting up a new base field set when the new one has identical or similar fields specified to an existing base field set.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Base Field Set.

   The Base Field Set page appears.

2. Click to highlight the field set to copy, and click Copy.

   The Base Field Set [Copy] page appears.

3. Enter a unique **Field Set Name** and **Element String** to associate with this base field set.

4. Modify the remaining settings for this base field set, as needed. Note that at least one data field record must be associated with this transparent entity base field set. For more information about the variable elements on this page, see Base Field Set elements

5. Perform one of the following:

   - Click OK to save the changes and return to the Base Field Set page.
   - Click Apply to save the changes and remain on this page.

If field validations succeed, the field set is saved.

If OK or Apply is clicked and any of the following conditions exist, an error message appears:

- If the entry in any field is not valid or are out of range
- If a required field is empty (not entered)

## Deleting a base field set

If a base field set is referenced from any other base field sets or from an entity definition, you must first modify the referencing record (base field set or entity definition) to eliminate the reference before you are allowed to perform the delete.

You can only perform this task when logged into the Active Primary NOAMP.
Note: Global Data Delete permission is required for this function.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Base Field Set.

The Base Field Set page appears.

2. Click to highlight the base field set to delete, and click Delete.

A popup confirmation window appears.

3. Perform one of the following actions:
   • Click OK to delete the permission record.
   • Click Cancel to cancel the delete function and return to the Base Field Set page.

Once the delete process is complete, an Info option appears in the upper left corner. When clicked, the record’s delete status is displayed.

Definition

The Definition page is used to add, edit, and delete transparent entity definitions from the subscriber entity configuration (SEC). A transparent entity definition is a container for different versions of transparent entities and provides details on if/how to extract the version number from within a transparent entity.

Note: A transparent entity definition can be defined but cannot be accessed until it is associated with an entity. This can be done by either creating a new entity to use the definition or updating the definition associated with an existing entity. An opaque entity must be changed to transparent before it can be associated with a definition.

Definition elements

Use the UDR Definition page to manage transparent entity definitions. This table describes fields on this page.

<table>
<thead>
<tr>
<th>Table 5-6 Definition Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
<tr>
<td>Transparent Entity Definition Name</td>
</tr>
<tr>
<td>Allow Reset</td>
</tr>
</tbody>
</table>
Table 5-6  (Cont.) Definition Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Versions Defined</td>
<td>A derived value that is determined by the number of times a base field set is mapped to a definition on a Definition page. Appears only on the Definitions View page.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-64</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: 1</td>
</tr>
</tbody>
</table>

In the lower part of the page, use the **Add Version** button to associate one or more existing base field sets with the entity definition. At least one base field set must be associated with a definition before the definition record can be saved.

Table 5-7  Definition Version Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Field Set Name</td>
<td>Name of the base field set associated with this entity definition. Only existing base field set names can be selected.</td>
<td>Format: Dropdown list</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: List of existing base field set names</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Element String</td>
<td>XML element name under which the defined fields reside. This element cannot be edited from here.</td>
<td>Format: String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-64 characters</td>
</tr>
<tr>
<td>Version Capable</td>
<td>Check box indicating whether or not multiple versions of this Entity are allowed (check marked if yes). This element cannot be edited from here.</td>
<td>Format: Check box</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Checked, unchecked</td>
</tr>
<tr>
<td>Version Identifier Element</td>
<td>XML element name of the version identifier. This element cannot be edited from here.</td>
<td>Format: String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1-64 characters</td>
</tr>
<tr>
<td>Version Values</td>
<td>The version value associated with this base field set. This element cannot be edited from here.</td>
<td>Format: Numeric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-4294967295</td>
</tr>
</tbody>
</table>

Viewing definitions

All possible entity definitions configured in the database can be viewed from this page. There is no limitation to the number of definitions that can be configured.

You can perform this task when logged into the Active Primary NOAMP.

1. Select **UDR > Subscriber Entity Configuration > Transparent Entity > Definition**.

   The Definition page appears.

   The list of transparent entity definitions is displayed.
Note: To change the order of the records in a column (from descending to ascending or vice versa), click the header of that column.

Adding a definition

Use this procedure to add an entity definition and to associate one or more base field sets with it.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Definition.

   The Definition page appears.

2. Click Insert.

3. Enter a unique Transparent Entity Definition Name to associate with the definition.

4. Checkmark Allow Reset if a reset can be performed for this entity definition.

5. Click Add Version for each base field set to associate with this entity definition.

6. From the Base Field Set Name dropdown list, select an existing base field set to associate with this entity definition. Note that at least one base field set must be associated with a definition before you can save the new definition record.

   Note: The base field set info that appears here is for display purposes only. See Base Field Set elements for more information on each field.

7. Once all needed fields have been added, perform one of the following:
   - Click OK to save the permissions and return to the Definition page.
   - Click Cancel to return to the Definition page without saving the changes.

   If OK is clicked and any of the following exist, an error message appears:
   - Any required field is empty; no value was entered or selected
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The transparent entity definition name is not unique; it already exists in the base field set list

Editing a definition

Use this procedure to update the settings for an existing entity definition.

You can only perform this task when logged into the Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Definition.

   The Definition page appears.

2. Click to highlight the definition record to edit, and click Edit.

   The Definition [Edit] page appears.
3. Modify the settings for this definition, as needed. A new version, or base field set, can be added by clicking Add Version, and an existing version can be deleted by clicking the gray x on the row to delete. Note that at least one base field set must be associated with a definition before you can save the modified definition record. For more information about these fields, see Definition Elements.

4. Click OK to save the changes and return to the Definition page.

   If field validations succeed, the connection is saved.

   If OK is clicked and any of the following conditions exist, an error message appears:
   - If the entry in any field is not valid or is out of range
   - If a required field is empty (not entered)

Deleting a definition

Follow these steps to delete an entity definition.

You can only perform this task when logged into the active primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Transparent Entity > Definition.

   The Definition page appears.

2. Click to highlight the base field set to delete, and click Delete.

   A popup confirmation window appears.

3. Perform one of the following actions:
   - Click OK to delete the definition.
   - Click Cancel to cancel the delete function and return to the Definition page.

   Once the delete process is complete, an Info option appears in the upper left corner. When clicked, the record’s delete status is displayed.

Interface Entity Map

This menu option maps the name of an entity in the SEC database to a specific type of interface - SH, REST, SOAP, etc. An interface entity mapping makes an entity available on the related interface. For example, in the case of a REST interface, the data type seen within the URL of a REST request is mapped to the entity.

Example uses of interface entity maps:

- **Sh Interface Entity Map** - mapping a data entity to the Sh interface makes the entity available to the Policy Management server.

- **REST Interface Entity Map** - mapping a data entity to the REST interface makes the entity available to the provisioning systems.

**Interface Entity Map elements**

Use the Interface Entity Map page to manage interface entity maps. This table describes fields on this page.
Table 5-8  Interface Entity Map Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface Entity Name</td>
<td>Entity name specific to an interface. For example, Service Indication name (for Sh) and URL token (for REST).</td>
<td>Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number Range: 1-128 characters Default: Blank</td>
</tr>
<tr>
<td>Interface Name</td>
<td>Type of interface</td>
<td>Format: Dropdown list Range: SH, REST, SOAP, XML Default: REST</td>
</tr>
<tr>
<td>Entity Name</td>
<td>SEC entity name to be mapped.</td>
<td>Format: Dropdown list Range: All defined entity names Default: Blank</td>
</tr>
</tbody>
</table>

Viewing interface entity maps

All possible interface entity maps configured in the database can be viewed from this page. There is no limitation to the number of maps that can be configured.

You can perform this task when logged into an Active Primary NOAMP.

1. Select UDR > Subscriber Entity Configuration > Interface Entity Map.

The Interface Entity Map page appears.

The list of existing interface entity maps is displayed.

Note: To change the order of the records in a column (from descending to ascending or vice versa), click the header of that column.

Adding an interface entity map

Follow these steps to add a new interface entity map. You can only perform this task when logged into the Active Primary NOAMP.

Note: At least one entity must exist before an interface entity map can be created.

1. Select UDR > Subscriber Entity Configuration > Interface Entity Map.

The Interface Entity Map page appears.

2. Click Insert.
3. Enter an **Interface Entity Name** to map to a specific type of interface and entity. If needed, the same **Interface Entity Name** can be used for more than one Interface Name. See **Interface Entity elements** for more information on each field.

4. Select a type of interface from the **Interface Name** pulldown list.

5. Select an existing entity name to associate with this interface from the **Entity Name** pulldown list.

6. Perform one of the following:
   - Click **OK** to save the permissions and return to the Interface Entity Map page.
   - Click **Cancel** to return to the Interface Entity Map page without saving the changes.

If **OK** is clicked and any of the following exist, an error message appears:

- Any required field is empty; no value was entered or selected
- The entry in any field is not valid (wrong data type or out of the valid range)
- The interface entity name is not unique; it already exists in the interface entity map list

**Deleting an interface entity map**

Follow these steps to delete an entity definition. You can only perform this task when logged into the Active Primary NOAMP.

---

*Note:* Global Data Delete permission is required for this function.

---

1. Select **UDR > Subscriber Entity Configuration > Interface Entity Map**.

   The Interface Entity Map page appears.

2. Click to highlight the interface entity map to delete, and click **Delete**.

   A popup confirmation window appears.

3. Perform one of the following actions:
   - Click **OK** to delete the interface entity map.
   - Click **Cancel** to cancel the delete function and return to the Interface Entity Map page.

Once the delete process is complete, an **Info** option appears in the upper left corner. When clicked, the record’s delete status is displayed.
From the Maintenance menu you can:

- Query database information for a specific subscriber key
  - MSISDN
  - IMSI
  - NAI
  - account ID
  - pool ID
- View provisioning connections, command logs, and the status of imports and exports
- Schedule exports
- View the subscribing client status
- Configure quota reset tasks
- Audit/clean inconsistent subscriber/pool records
- Monitor command log export operations
- View the status of LDAP and SOAP connections between the Ud client and Ud server

The available menu options vary based on the type of server you are logged into (i.e., for provisioning maintenance tasks, you must be logged into the active primary NOAMP) and the permissions assigned to your group. If you do not see a menu option you need, please make sure you are logged into the appropriate type of server and ask your administrator to make sure the group your user ID belongs to has the appropriate permissions.

Connections

The Connections page allows you to view a list of all current external connections. All remote IP addresses/ports and details of when each connection was established can be viewed. A display filter can be applied for a specified search. The information is displayed in tabular format.

Any local connections (including the one from the GUI itself) are not included.

Connections elements

The Connections page displays information in a tabular format.
### Table 6-1 Connections Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Definition</th>
<th>Data Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timestamp</td>
<td>Time the connection was established</td>
<td>Format: Year-Month-Day Hour-Minute-Second</td>
</tr>
<tr>
<td>CID</td>
<td>Connection ID number</td>
<td>Format: Integer</td>
</tr>
<tr>
<td>Remote IP</td>
<td>IP address for the remote client</td>
<td>Format: Valid IP address</td>
</tr>
<tr>
<td>Remote Port</td>
<td>Port used for the remote client connection</td>
<td>Format: Valid port number</td>
</tr>
<tr>
<td>Connection Type</td>
<td>Indicates if the connection interface type is REST (RAS), SOAP (XSAS), XmlImport, or XmlExport</td>
<td>Range: XSAS, RAS, XmlImport, XmlExport</td>
</tr>
</tbody>
</table>

### Viewing connections status

Use this procedure to view a list of information of all provisioning connections established to the system. The listing of connections may be filtered.

1. **Select UDR > Maintenance > Connections.**

   The Connections page appears. All provisioning connections are displayed in tabular form.

2. To perform filtering, select the category on which to filter from the **Display Filter** dropdown menu.

### Table 6-2 Connection Status Display Filter categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote IP Address</td>
<td>IP address for the remote client.</td>
</tr>
<tr>
<td>CID</td>
<td>The Connection ID on which to filter.</td>
</tr>
<tr>
<td>Remote Port</td>
<td>Port used for the remote client connection.</td>
</tr>
<tr>
<td>Connection Type</td>
<td>Type of interface connection.</td>
</tr>
</tbody>
</table>

3. Enter the target character string to filter on in the text box.

4. **Use** **Time Range** **fields to select the time interval to display:**

   - Enter the amount of time for which connections are to be displayed -- enter a numeric value in the first field and specify the type of time interval in the second field (Days, Hours, Minutes, or Seconds).
   - Specify either Beginning or Ending to indicate whether the date and time listed specifies the beginning or the end of the time range.
   - Enter the date and time for the time range to begin/end (Year, Month, Date, Hour, Minute).

5. **Click Go** to show results.
Any connections that occurred during the specified time range display are listed on the page. Any time results are filtered, the highlighted text *RESULTS FILTERED* is displayed at the bottom of the results.

**Command Log**

The **UDR > Maintenance > Command Log** page shows a table that contains the details and status of different provisioning commands and their responses that were executed over a period of time, from both remote and local connections, including the GUI. This table shows the **Timestamp**, **System ID**, **Remote IP**, **CID**, and the **Text** of the commands received from both remote and local connections, including the GUI. Additionally, the username appears in the **Text** field when the SOAP username/password authentication feature is enabled on the **UDR > Configuration > Provisioning Options** page. The Command Log page also provides the ability to filter the results based on SystemID, Remote IP, CID, Log Text, or Timestamp.

Every provisioning message exchanged between provisioning systems is written to the command log and is stored for up to seven days.

**Command Log elements**

The Command Log page displays information in a tabular format. This table describes elements on the **UDR > Maintenance > Command Log** page.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timestamp</td>
<td>Date and time the provisioning command was logged</td>
</tr>
<tr>
<td>System ID</td>
<td>System identifier of the originating client</td>
</tr>
<tr>
<td>Remote IP</td>
<td>IP address of the originating client</td>
</tr>
<tr>
<td>CID</td>
<td>Client connection identifier</td>
</tr>
<tr>
<td>Text</td>
<td>Exact provisioning command and response message; includes username when SOAP username/password authentication feature is enabled</td>
</tr>
<tr>
<td>Pause updates</td>
<td>Check mark to pause the updating of provisioning commands to this page.</td>
</tr>
</tbody>
</table>

**Viewing command logs history**

Use this task to view details and status of different commands that were executed over a period of time. The history is displayed as a table that shows the **Timestamp**, **System ID**, **CID**, and the **Text** of the commands received from both remote and local connections, including the GUI. The history may be filtered by category. A maximum of 10,000 records can be displayed.

**Note:** You can check mark the **Pause updates** check box to temporarily stop this command log from being updated.

1. Select **UDR > Maintenance > Command Log**.

   The Command Log page appears.
2. To filter the commands displayed, select the category by which to perform the filtering:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Show all commands</td>
</tr>
<tr>
<td>System ID equal to...</td>
<td>A hidden text box becomes visible for you to enter the System ID to filter on.</td>
</tr>
<tr>
<td>CID equal to...</td>
<td>A hidden text box becomes visible for you to enter the Connection ID to filter on.</td>
</tr>
<tr>
<td>Log text like...</td>
<td>A hidden text box becomes visible for you to enter one or more keywords to filter on.</td>
</tr>
<tr>
<td>Time range...</td>
<td>When selected, hidden select boxes for “From” and “To” times become visible for you to enter the time range to filter on.</td>
</tr>
</tbody>
</table>

3. Click **Go** to show results.

When results are filtered, the highlighted text **RESULTS FILTERED** is displayed at the bottom of the results.

### Import Status

This page allows an operator to view and monitor the status of all import operations. Import records with a status of Completed or Failed can be deleted from this table.

Data can be imported from a provisioning import file to add new or updated data to the database. The values within the file are used to populate the database. The import file is an ASCII text file that contains a series of database manipulation requests. Each request must be formatted on a single line.

Import files are placed in the **Remote Import Directory** on the remote server specified in **Remote Host IP Address** field on the Provisioning Options page (**UDR > Configuration > Provisioning Options**). The files are detected within five minutes and are automatically resynched over SFTP to the file management storage area on the active server. This **Local Import Directory** is hardcoded on the Provisioning Options page.

For a file to be imported, it must:

- be properly named following the naming convention. (XML import files must have *.ixml file extensions.)
- have been placed in the remote directory after the time when provisioning import last ran
- must not have been previously imported. A file that has already been imported into the local directory will not be imported again, even if its status is Failed

**Note:** To import a previously Failed file, correct the file as necessary, rename the file, and then place the renamed file in the remote directory.
Import Status elements

The Import Status page displays information in a tabular format.

Table 6-5  Import Status Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import File</td>
<td>Name of import file. Click on filename to open or save the file.</td>
</tr>
<tr>
<td>Time Queued</td>
<td>Time the import was queued</td>
</tr>
<tr>
<td>Time Started</td>
<td>Time the import started</td>
</tr>
<tr>
<td>Time Completed</td>
<td>Time the import completed</td>
</tr>
<tr>
<td>Progress</td>
<td>Percentage of import progress</td>
</tr>
<tr>
<td>Result Log</td>
<td>Name/heading of result log. Click on filename to open or save the file.</td>
</tr>
<tr>
<td>Pass Count</td>
<td>The number of successful import commands</td>
</tr>
<tr>
<td>Fail Count</td>
<td>The number of unsuccessful import commands</td>
</tr>
<tr>
<td>Status</td>
<td>Status of the import</td>
</tr>
<tr>
<td>Pause updates</td>
<td>Check mark to pause the updating of import files to this page.</td>
</tr>
</tbody>
</table>

Viewing import files

This procedure allows you to view the status of all imports. Imports are not scheduled through the GUI; they are initiated by the presence of a file placed in the Remote Import Directory (which is defined on the Provisioning Options page).

- If the filename in the Import File or Result Log column exceeds 24 characters, it is truncated at 22 characters and the characters “…” are appended to the end of the truncated string to signify that the filename was truncated.
- The filenames in both the Import File or Result Log columns are hyperlinks. You can click on the links to view the files as text or to save them locally.
- You cannot edit an imported file using this form.
- You may delete an Import Status record if the Status is Completed or Failed.

1. Select UDR > Maintenance > Import Status.

   The Import Status page appears. All provisioning connections are displayed in tabular form. The display fields are described in Import Status elements.

2. To filter the commands displayed, select the category by which to perform the filtering:
Table 6-6  Import Status filtering categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import File</td>
<td>Name of import file</td>
</tr>
<tr>
<td>Result Log</td>
<td>Name of results file</td>
</tr>
<tr>
<td>Status</td>
<td>Status of the import</td>
</tr>
</tbody>
</table>

3. Choose the filtering operator, either = or Like (depending on the filtering category).

4. Enter the target character string to filter on in the text box.

5. Use Time Range fields to select the time interval to display:
   - Enter the amount of time for which connections are to be displayed -- enter a numeric value in the first field and specify the type of time interval in the second field (Days, Hours, Minutes, or Seconds).
   - Specify either Beginning or Ending to indicate whether the date and time listed specifies the beginning or the end of the time range.
   - Enter the date and time for the time range to begin/end (Year, Month, Date, Hour, Minute).

6. Click Go to show results.

7. To delete an import record, click to highlight the import record to delete, and then click Delete.

Note: The import record can only be deleted if the Status is Completed or Failed. A popup confirmation dialog appears. For all other imports, the Delete action is inactive (grayed-out).

Export Schedule

Use this option to generate and export a text file (in xml format) that contains subscriber records from the subscriber database. This export can be scheduled to occur once, or can be scheduled to recur at a specific interval. The export file includes only the records specified in the subscriber ID field (MSISDN or IMSI) and the record range fields on this page. A maximum of one million subscribers can be exported at one time.

The export file can be:
   - offloaded to a remote server
   - downloaded to the file transfer area
   - used for data manipulation of subscriber data (outside of system)
   - used as an import file

The Provisioning Options page (UDR > Configuration > Provisioning Options) defines the local and remote directories used for the export and import of files, as well as how long the export/import operations’ status information and associated files are available before being removed from the local system.
The export process can run at the same time as provisioning updates and network (Sh) updates.

**Export Schedule elements**

The Export Schedule page describes elements on the Export Schedule page.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>Name of export file</td>
<td>Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number. Range: 4-12 characters Default: Blank</td>
</tr>
<tr>
<td>Subscriber ID</td>
<td>Type of Subscriber ID based on which subscriber records are exported; appears only on Insert and Edit pages.</td>
<td>Format: Pulldown menu Range: MSISDN, IMSI Default: MSISDN</td>
</tr>
<tr>
<td>Date</td>
<td>The initial date on which this export should run; appears only on Insert and Edit pages.</td>
<td>Format: Pulldown menu Range: All months, all days of the month, and the current year and current year + 1 Default: The current date</td>
</tr>
<tr>
<td>Time</td>
<td>The initial time at which this export should run; appears only on Insert and Edit pages. Time is specified using the time zone configured for your login.</td>
<td>Format: Pulldown menu Range: All hours and minutes in the day Default: The current time (plus 5 minutes)</td>
</tr>
<tr>
<td>First Export</td>
<td>The first time this export is scheduled to run; appears only on View page.</td>
<td>Format: String Range: 4-12 characters Default: Blank</td>
</tr>
<tr>
<td>Next Export</td>
<td>The next time this export is scheduled to run; appears only on View page.</td>
<td>Format: Integer Range: 4-12 characters Default: Blank</td>
</tr>
<tr>
<td>Start Range</td>
<td>Start of range of data to be included in this export</td>
<td>Format: Integer Range: 8-15 digits Default: Blank</td>
</tr>
</tbody>
</table>
Table 6-7  (Cont.) Export Schedule elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>End Range</td>
<td>End of range of data to be included in this export; this field is optional. Note: A maximum of 1 million subscribers will be exported, irrespective of the End Range value.</td>
<td>Format: Integer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 8-15 digits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
<tr>
<td>Repeat</td>
<td>How often to repeat the export.</td>
<td>Format: Radio button</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: None, Daily, Weekly, Monthly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: None</td>
</tr>
<tr>
<td>Comment</td>
<td>Purpose of export; this field is optional.</td>
<td>Format: String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 0-255 characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Blank</td>
</tr>
</tbody>
</table>

Viewing Export Schedule

The Export Schedule page shows the scheduled exports for this system.

1. Select UDR > Maintenance > Export Schedule.

The Export Schedule page appears. All exports are displayed in tabular form. The display fields are described in Export Schedule elements.

2. To perform filtering, select the category on which to filter from the Display Filter dropdown menu.

3. Select the category by which to perform the filtering.

Table 6-8  Export Schedule filtering categories

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>Name of export file</td>
</tr>
<tr>
<td>Subscriber ID</td>
<td>Type of subscriber ID to export</td>
</tr>
<tr>
<td>Start Range</td>
<td>Start of range of data to be included</td>
</tr>
<tr>
<td>End Range</td>
<td>End of range of data to be included</td>
</tr>
<tr>
<td>Repeat</td>
<td>How often to repeat the export</td>
</tr>
<tr>
<td>Comment</td>
<td>Purpose of the export</td>
</tr>
</tbody>
</table>

4. The filtering operator is either = or Like, depending on the filter category.

5. Use Time Range fields to select the time interval to display:
• Enter the amount of time for which export schedules are to be displayed -- enter a numeric value in the first field and specify the type of time interval in the second field (Days, Hours, Minutes, or Seconds).

• Specify either Beginning or Ending to indicate whether the date and time listed specifies the beginning or the end of the time range.

• Enter the date and time for the time range to begin/end (Year, Month, Date, Hour, Minute).

6. Click Go to show results.

Any export schedules that occurred during the specified time range display are listed on the page, and the highlighted text RESULTS FILTERED is displayed at the bottom of the results.

Adding an Export Schedule

The Export Schedule [Insert] page allows you to create an export schedule for this system.

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

1. Select UDR > Maintenance > Export Schedule.

The Export Schedule page appears.

2. Click Insert, located on the bottom of the page.

The Export Schedule [Insert] page appears.

3. Enter an identifying string for the scheduled export in the Identifier text box.

The identifier must be 4 to 12 characters.

4. Select the type of Subscriber ID to be exported from the pulldown list.

5. Specify the Date and Time for the first export to occur.

6. Specify the Start Range of the data to be exported.

7. Specify the End Range of the data to be exported.

8. Optionally, specify the frequency of this export by changing the Repeat value.

9. Text may be entered in Comment to help identify this export.

10. Perform one of these actions:

    a. Click OK. If field validations succeed, the new export is saved and the previous page appears. If the page contains any values that are not valid, or if a required field is empty, an error message appears.

    b. Click Cancel to abort changes on this page and return to the previous page.

Editing an Export Schedule

The Export Schedule [Edit] page allows you to manually change an existing export job by editing an entry in the Export Schedule.
The field or fields highlighted in yellow are keys and must be unique within this table in order to be successful. Fields marked with a red asterisk (*) require a value.

1. Select **UDR > Maintenance > Export Schedule**.

The Export Schedule page appears.

2. Click to highlight the export schedule to edit, and click **Edit**.

The Export Schedule [Edit] page appears.

3. Modify the export schedule values as needed; all fields can be edited. For more information about these fields, see Export Schedule Elements.

4. Perform one of these actions:
   - Click **OK**. If field validations succeed, the updated schedule is saved and the previous page appears. If the page contains any values that are not valid, or if a required field is empty, an error message appears.
   - Click **Cancel** to abort changes on this page and return to the previous page.

**Deleting an Export Schedule**

The Export Schedule [Delete] page allows you to manually delete an export schedule by deleting an entry from the Export Schedule Table.

1. Select **UDR > Maintenance > Export Schedule**.

The UDR Maintenance Export Schedule page appears.

2. Click to highlight the export schedule to be deleted, and click **Delete**.

A popup confirmation window appears.

3. Perform one of the following actions:
   - Click **OK** to confirm the action to delete the export schedule and return to the Export Schedule page.
   - Click **Cancel** to abort the delete action and return to the Export Schedule page.

Once the delete process is complete, an Info option appears in the upper left corner. When clicked, the record’s delete status is displayed.

**Export Status**

The Export Status page displays information in a tabular format and shows all in-progress and completed scheduled exports in this system.

**Export Status elements**

This table describes elements on the Export Status page.
### Table 6-9 Export Status Maintenance Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export File</td>
<td>Name of export file</td>
</tr>
<tr>
<td>Time Queued</td>
<td>Time the export was queued</td>
</tr>
<tr>
<td>Time Started</td>
<td>Time the export started</td>
</tr>
<tr>
<td>Time Completed</td>
<td>Time the export completed</td>
</tr>
<tr>
<td>Subscriber Count</td>
<td>Number of exported Subscribers</td>
</tr>
<tr>
<td>Pool Count</td>
<td>Number of exported Pools</td>
</tr>
<tr>
<td>Status</td>
<td>Status of export</td>
</tr>
<tr>
<td>Comment</td>
<td>Descriptive text about export. This field is optional, so it may be blank.</td>
</tr>
<tr>
<td>Pause updates</td>
<td>Check mark to pause the updating of export files to this page.</td>
</tr>
</tbody>
</table>

### Viewing Export Status

The Export Status page shows the status of all in-progress and completed scheduled exports for this system.

- If the filename in the Export File column exceeds 24 characters, it is truncated at 22 characters and the characters “...” are appended to the end of the truncated string to signify that the filename was truncated.

- The filenames in the Export File column are hyperlinks. You can click on the links to view the files as text or to save them locally.

- You can not modify or delete an export record using this form.

- Records are automatically removed after 7 days.

1. Select **UDR > Maintenance > Export Status**.

   The Export Status page appears. All exports are displayed in tabular form. The display fields are described in Export Status elements.

2. Select the category on which to perform the filtering.

### Table 6-10 Export Status filtering categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export File</td>
<td>Name of export file</td>
</tr>
<tr>
<td>Status</td>
<td>Status of export</td>
</tr>
<tr>
<td>Comment</td>
<td>Descriptive text about export</td>
</tr>
</tbody>
</table>
3. Enter the target character string to filter on in the text box.

4. Use **Time Range** fields to select the time interval to display:
   - Enter the amount of time for which export schedules are to be displayed -- enter a numeric value in the first field and specify the type of time interval in the second field (Days, Hours, Minutes, or Seconds).
   - Specify either Beginning or Ending to indicate whether the date and time listed specifies the beginning or the end of the time range.
   - Enter the date and time for the time range to begin/end (Year, Month, Date, Hour, Minute).

5. Click **Go** to show results.

Any exports that occurred during the specified time range display are listed on the page, and the highlighted text **RESULTS FILTERED** is displayed at the bottom of the results.

---

**Note:** To change the order of the records in the table, click the header on which you want to sort. Records will be reordered in descending order (or vice versa when clicked again).

### Subscribing Client Status

The Subscribing Client Status page displays information in a tabular format and shows the status of all clients in this system. This page displays the client host name, status of the client host, number of failed count, last status change time for when the status of client host was changed, and last retry time for when client host was retried. The Client Host contains Sh client names; these match the Client Host columns found on the Subscribing Client Permissions page (**UDR > Configuration > Subscribing Client Permissions**).

### Subscribing Client Status elements

This table describes elements on the Subscribing Client Status page.

<table>
<thead>
<tr>
<th><strong>Table 6-11  Subscribing Client Status Elements</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>Client Host</td>
</tr>
<tr>
<td>Status</td>
</tr>
<tr>
<td>Fail Count</td>
</tr>
<tr>
<td>Last Status Change Time</td>
</tr>
<tr>
<td>Last Retry Time</td>
</tr>
</tbody>
</table>
Viewing Subscribing Client Status

Use the Subscribing Client Status page to view the status of all clients for this system.

1. Select UDR > Maintenance > Subscribing Client Status.

   The Subscribing Client Status page appears. All client hosts are displayed in tabular form. The display fields are described in Subscribing Client Status elements.

2. Select the category by which to perform the filtering.

   **Table 6-12  Subscribing Client Status filtering categories**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Host</td>
<td>Name of client host</td>
</tr>
<tr>
<td>Status</td>
<td>Status of client - Up, Down</td>
</tr>
<tr>
<td>Fail Count</td>
<td>Number of fail count</td>
</tr>
</tbody>
</table>

3. Choose the filtering operator.

   **Table 6-13  Export Status filtering operators**

<table>
<thead>
<tr>
<th>Subscribing Client Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>=</td>
<td>Is equal to</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Is equal to or greater than</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Is equal to or less than</td>
</tr>
<tr>
<td>Like</td>
<td>Is Like (wildcard is * character)</td>
</tr>
</tbody>
</table>

4. Enter the target character string to filter on in the text box.

5. Click Go to show results.

Subscribing clients that match the filtering criteria are listed on the page, and the highlighted text RESULTS FILTERED is displayed at the bottom of the results.

**Note:** To change the order of the records in a column (from descending to ascending or vice versa), click the header of the column.

Quota Reset Scheduler Tasks

The Quota Reset Scheduler Tasks page allows you to configure a task that resets one or more quota row element values for inactive subscriber/pool records. The reset occurs at the date and time defined in the task. Up to ten elements can be defined for each Quota Reset task.

There can be multiple tasks scheduled to run at the same time, but one task only runs at a time. Each task is replicated and available on the Standby, DR-Active, and DR-Standby nodes, so a task running on a node can be restarted on other nodes even after a single/double node/site outage.
Additionally, this feature monitors when a task is scheduled to run and displays the status of each task in the Measurement Statistics section of the View and Edit pages. The task execution is complete when all the subscribers/pools in the range are examined and modified. The statistics of the last run are also displayed on this page.

Any time a quota reset task changes status, an Event is generated to notify you of the change. This includes when the quota reset activity is started, completed, aborted, paused, or resumed.

**Quota Reset Scheduler Tasks elements**

This table describes elements on the Quota Reset Scheduler Tasks View and Edit pages.

<table>
<thead>
<tr>
<th>Table 6-14</th>
<th>Subscribing Client Status Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field</strong></td>
<td><strong>Description</strong></td>
</tr>
</tbody>
</table>
| Task ID     | Specify a unique description to identify the task and its functionality. This field is required. | Format: String
              Range: 1-64 characters, alphanumeric and underscore
              Default: Blank |
| Start Time  | Specify date and time when the quota is to be reset. This field is required. | Format: Pulldown menus
              Range: Valid calendar date and time (must be in the future); select month, day, year, hour, and minute (in 24 hour time)
              Default: Blank |
| Key Type    | Select the key type to use when specifying the subscriber range. | Format: Pulldown menu
              Range: IMSI, MSISDN, or PoolID
              Default: IMSI |
| Range - All | Check mark the All box for all records with the specified Key Type to have their quotas reset. When this box is checked, Start Range and End Range fields are not available. | Format: Checkbox
              Range: Checked, unchecked
              Default: Unchecked |
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| Range - Start Range | Specify the subscribers/pools start range value for the quota reset. For IMSI and MSISDN, the value must be between 8 and 15 digits in length. For POOLID, the value must be between 1 and 22 digits in length. NOTE: This field is required when the All check box is not checked. | Format: String  
Range: 1-22 digits  
Default: Blank |
| Range - End Range   | Specify the subscribers/pools end range value for the quota reset. For IMSI and MSISDN, the value must be between 8 and 15 digits in length. For POOLID, the value must be between 1 and 22 digits in length. NOTE: This field is required when the All check box is not checked. | Format: Numeric  
Range: 1-22 digits  
Default: Blank |
| Force NRT           | Select Yes if you want the Quota Row Element Name's reset time (in the subscriber/pool records) to be updated to the New Next Reset Time value. All Quota Row Element Name records that match the Old NRT time will be updated. NOTE: If the value of this field is Yes, the Old NRT field is required. | Format: Pulldown menu  
Range: Yes, No  
Default: No |
### Table 6-14 (Cont.) Subscribing Client Status Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Old NRT</strong></td>
<td>Specify the reset time value being replaced using UTC format.</td>
<td>Format: UTC string</td>
</tr>
<tr>
<td></td>
<td>UTC date/time is in ISO/DIS 8601 format -- CCYY-MM-DDThh:mm:ss[Z</td>
<td>(+</td>
</tr>
<tr>
<td></td>
<td>• CC-century (00-99)</td>
<td>Default: Blank</td>
</tr>
<tr>
<td></td>
<td>• YY-year (00-99)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM-month (01-12)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• DD-day of month (01-31)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• T-date/time separator</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• hh-hour (00-23)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• mm-minute (00-59)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• ss-second (00-59)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Z- indicates the civil time zone at Greenwich</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Examples of UTC format:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015-08-07T22:10:05Z</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015-07-24T01:15:05Z</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015-08-10T13:20:30+6:00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015-06-09T10:21:10</td>
<td></td>
</tr>
<tr>
<td><strong>Row Element List</strong></td>
<td>Quota Row Element Name: Specify the subscriber/pool's element name that is having its quota reset. This field is required.</td>
<td>Format: String</td>
</tr>
<tr>
<td></td>
<td>New Next Reset Time: Specify the date and time used for replacing the Next Reset Time field of the Quota Row Element. Example of UTC format: 2015-11-15T14:30:15Z. This field is required.</td>
<td>Range: 1-64 characters - alphanumeric and underscore</td>
</tr>
<tr>
<td></td>
<td>Click Add to add another row element. There can be up to 10 row elements in the list.</td>
<td>Default: Blank</td>
</tr>
<tr>
<td><strong>Suppress PNR</strong></td>
<td>Specify if a PNR message should be suppressed during quota reset.</td>
<td>Format: Pulldown menu</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: Yes, No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Yes</td>
</tr>
</tbody>
</table>
### Table 6-14  (Cont.) Subscribing Client Status Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Values</td>
<td>Specify whether or not the element values should be reset during the quota reset process.</td>
<td>Format: Pulldown menu Range: Yes, No Default: Yes</td>
</tr>
<tr>
<td>Current State</td>
<td>Displays the current operational state of the quota reset task. This field is not editable. State options are:</td>
<td>Not editable. SCHEDULED is displayed when the task is created.</td>
</tr>
<tr>
<td></td>
<td>• SCHEDULED: The task is scheduled to execute. When the task is created, it goes into SCHEDULED state.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• RUNNING: The task is currently running, scanning through subscriber/pool records, and modifying the quota row elements.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PAUSED: The task execution is temporarily paused due to UDRBE process congestion.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• COMPLETED: Quota reset scheduler has completed the modification of the specified records.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• ABORTED: The user aborted a task that is in SCHEDULED, RUNNING, or PAUSED state.</td>
<td></td>
</tr>
</tbody>
</table>

The Measurement Statistics table at the bottom of the View page provides the status of the task while running. The Edit page gives the status of the last run. The table values are empty before a task runs for the first time. If the task has completed or been aborted, the table shows the status of the last run. These elements are for display only and cannot be edited.

### Table 6-15  Measurement Statistics elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Execution State</td>
<td>Date and time of the last execution completion time in UTC format</td>
</tr>
</tbody>
</table>
### Table 6-15 (Cont.) Measurement Statistics elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Execution Completed</td>
<td>The operational state of the task during the last execution. Possible states are RUNNING, PAUSED, ABORTED, and COMPLETED.</td>
</tr>
<tr>
<td>Total Records Examined</td>
<td>Total number of subscriber/pool records examined by the task</td>
</tr>
<tr>
<td>Total Records Reset</td>
<td>Total number of subscriber/pool records for which one or more quota entities have been modified</td>
</tr>
<tr>
<td>Total Row Elements Reset</td>
<td>Total number of quota row elements that have been modified</td>
</tr>
<tr>
<td>Last Record Processed</td>
<td>The key value of the subscriber/pool processed last for the specified key type (of the task)</td>
</tr>
<tr>
<td></td>
<td>NOTE: This value can be IMSI or MSISDN for Subscriber Records, and POOLID for Pool Records.</td>
</tr>
</tbody>
</table>

### Viewing quota reset tasks

Use this procedure to view existing quota reset tasks and to manage them using the action buttons at the bottom of the page. By default, tasks display in state order: RUNNING/PAUSED on top, then SCHEDULED, COMPLETED, and ABORTED.

You can perform this procedure when logged into an NOAMP. Note that you must have permission to view this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Maintenance > Quota Reset Scheduler Tasks.

   The Quota Reset Scheduler Task page appears, displaying the tasks table in the center of the page. If no tasks have been set up, only the column headers in the table appear.

2. To view a subset of existing tasks, use the Filter option in the upper left corner to define the tasks you want displayed. Tasks can be filtered on the Task ID, State, or Key Type.

   To change the order of the tasks in the table, click on a column header to sort by that header.

### Adding a quota reset task

Use this procedure to configure a new task to be run in the future. There can be multiple tasks scheduled to run at the same time, but only one task runs at a time. Tasks scheduled at the same time run in the order of their creation time (what time a task is created affects the order of the queue).
You can perform this procedure when logged into an Active Primary NOAMP. Note that you must have permission to view this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Maintenance > Quota Reset Scheduler Tasks**.

   The Quota Reset Scheduler Task page appears.

2. Click **Insert**.

   The Quota Reset Scheduler Tasks [Insert] page appears.

3. Enter a unique name for this task in the **Task ID** field. This field is required.

4. Specify the date and time the quota reset is to occur in **Start Time**.

5. Specify the type of subscribers or pools to be reset by the quota reset in **Key Type**.

6. Either check mark **All** to process all records, or leave **All** unchecked and specify the range of subscribers/pools to be processed.

7. At least one element must be specified in **Row Element List**. To add additional elements to be affected by this quota reset, click **Add** to pop-up another element row. A maximum of ten elements can be defined for a task.

8. The remaining fields on the page are optional. See **Quota Reset Scheduler Tasks elements** for more information on each field.

9. Perform one of the following:

   - Click **OK** to save the task and return to the Quota Reset Scheduler Tasks page.
   - Click **Cancel** to return to the Quota Reset Scheduler Tasks page without saving the changes.

   If **OK** is clicked and any of the following conditions exist, an error message appears:

   - Any required field is empty; no value was entered or selected
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The Task ID is not unique; it already exists in the system

   The new task is created. It now appears on the Quota Reset Scheduler Tasks page and has a State of SCHEDULED.

### Editing a quota reset task

Use this procedure to edit a task that is in the state of Scheduled, Aborted, or Completed (Edit is grayed out if the task is Running or Paused). Modifying a task allows you to rerun an existing task, or change the entire configuration and effectively create a new task.

You can only perform this procedure when logged into the Active Primary NOAMP. Note that you must have permission to edit a task. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Maintenance > Quota Reset Scheduler Tasks**.
The Quota Reset Scheduler Tasks page appears.

2. Click on the task to be edited.

   The selected task displays in green.

3. Click Edit.

   The Quota Reset Scheduler Tasks [Edit] page appears.

4. Change existing task values, as needed. The only field that cannot be changed for an existing Quota Reset Scheduler Tasks is the Task ID; to change this field, the existing task must be deleted and a new one created. See Quota Reset Scheduler Tasks elements for more information on each field.

5. Perform one of the following:

   • Click OK to save the task and return to the Quota Reset Scheduler Tasks page.
   • Click Cancel to return to the Quota Reset Scheduler Tasks page without saving the changes.

   If OK is clicked and any of the following exist, an error message appears:

   • Any required field is empty; no value was entered or selected
   • The entry in any field is not valid (wrong data type or out of the valid range)

   When the task is successfully changed, the updated task values appear on the Quota Reset Scheduler Tasks page. If the Start Time was changed, the task now displays in a State of SCHEDULED.

**Viewing quota reset task statistics**

Use this procedure to view a quota reset task's statistics. Note that no statistics display for a task until its processing begins.

You can perform this procedure when logged into an NOAMP. Note that you must have permission to view this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Maintenance > Quota Reset Scheduler Tasks.

   The Quota Reset Scheduler Task page appears, displaying the tasks table in the center of the page.

2. Click on the task to be viewed.

   The selected task displays in green.

3. Click View.

   The Quota Reset Scheduler Tasks [View] page for this task appears.

   If the task is currently running, aborted, or completed, statistics appear in the Measurement Statistics table.
**Aborting a scheduler task**

Use this procedure to abort an existing scheduler task from the task table that is in a state of SCHEDULED, RUNNING, or PAUSED.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to abort a task. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Maintenance > Quota Reset Scheduler Tasks.
   
   The Quota Reset Scheduler Tasks page appears.

2. Click on the scheduler task to be aborted.
   
   The selected scheduler task displays in green.

3. Click **Abort**.
   
   A popup confirmation window appears.

4. Click **OK**.
   
   The selected task is aborted, and an Event is generated to notify users of the abort.

**Deleting a scheduler task**

Use this procedure to delete an existing scheduler task that is in a state of SCHEDULED, COMPLETED, or ABORTED.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to delete a task. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

1. Select UDR > Maintenance > Quota Reset Scheduler Tasks.
   
   The page appears.

2. Click on the scheduler task to be edited.
   
   The selected scheduler task displays in green.

3. Click **Delete**.
   
   A popup confirmation window appears.

4. Perform one of the following:
   
   - Click **OK** to delete the task and return to the Quota Reset Scheduler Tasks page.
   - Click **Cancel** to cancel the delete and return to the Quota Reset Scheduler Tasks page.

When successfully deleted, the task is removed from the Quota Reset Scheduler Tasks page.
Database Auditor

The **Database Auditor** page is used for auditing subscriber/pool databases for inconsistent records, and for cleaning (i.e., removing) these inconsistent records from the database.

From the **Database Auditor** page, you can perform the following functions:

- view log files from previously run audit and clean processes
- identify (or audit) and report database index inconsistencies
- delete (or clean) inconsistent subscribers/pools and all associated records from the database
- generate a database inconsistency log file
- abort an audit or clean process

An audit determines whether any corruption has occurred in the embedded index values associated with each subscriber. This can occur when references pointing to different parts of a subscriber or pool are left in an incorrect state, pointing to the wrong subscriber or pool records. This issue can cause a variety of system errors, including failure to access a subscriber/pool, failure to provision a subscriber/pool, failure to delete a subscriber/pool, and accessing data for the wrong subscriber. The audit process can be run regularly during a maintenance window (low traffic) or on-demand, when a complaint is received from a subscriber. An audit log file is created during the audit process and produces a list of all database inconsistencies.

The clean process removes inconsistent subscribers and pools from the database (including all associated records), bringing the database back to a consistent state. Once removed, you can then re-provision the deleted subscribers and pools. A clean log file is generated during this process. If no records are deleted, no subscriber or pool information will be listed in the log file.

An audit or clean process can be aborted, changing the process state from In Progress to Aborted in the State Table. The audit or clean process can be restarted by entering the related log filename in the appropriate section of the page and clicking the **Audit** or **Clean** button, respectively.

When UDRBE is in congestion, the abort/clean log file State in the State Table changes from In Progress to Paused. When the congestion clears, the paused process will automatically change back to the state of In Progress. When the audit/clean process fails, the process state changes to Failed. Alarm 13368 is raised when the process fails, and the error is mentioned in the log files.

**Database Auditor files**

When an audit is run, two files are created: an .ixml and a .dbauditor file. The names of these files are determined by the text entered in the **Result File Name** field. The format of the file name is Audit_<Result File Name>_<timestamp>.

The .ixml file is the result log. Use this file to manually determine which records have inconsistencies and their type. This file lists:

- all of the data records that contain inconsistencies
- number of subscribers or pools audited
- number of inconsistent subscribers or pools
- number of subscribers or pools cleaned
- if an audit failed (or was aborted) and the reason why

The .dbauditor file is used as input in the clean process. It stores statistics and the state for the most recent run, audit, or clean.

When a clean is run, this process also creates a log file. This filename is Clean_<Result File Name>_<timestamp>.

Database Auditor elements

These tables describe elements on the Database Auditor page.

**Table 6-16 Single Subscriber or Pool Audit Elements**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Type</td>
<td>Select the type of key used to identify the subscriber or pool for checking the foreign key inconsistency. The value selected here defines what can be entered in the next field, <strong>Key Value</strong>.</td>
<td>Format: Pulldown menu Range: IMSI, MSISDN, Account Id, PoolId Default: Blank</td>
</tr>
<tr>
<td>Key Value</td>
<td>Enter the key value used to identify the subscriber or pool for checking the foreign key inconsistency.</td>
<td>Format: Numeric Range: 1 - 255 digits Note: For MSISDN the value must be 8 - 15 digits; for IMSI the value must be 10 - 15 digits; for PoolId the value can be 1 - 22 digits. Default: Blank</td>
</tr>
<tr>
<td>Result File Name</td>
<td>Enter a filename to be used for the log file.</td>
<td>Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number Range: 1-32 characters Default: Blank</td>
</tr>
</tbody>
</table>
Table 6-17  Complete Database Audit Element

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result File Name</td>
<td>Enter a filename to be used for the output files. Filenames are prepended with Audit_ and appended with _&lt;timestamp&gt; plus the file format extension (either .ixml or .dbauditor)</td>
<td>Format: String - valid characters are alphanumeric and underscore; must contain at least one alphabetic or numeric character, and cannot start with a number. Range: 1-32 characters. Default: Blank</td>
</tr>
</tbody>
</table>

Table 6-18  Clean Element

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input File Name</td>
<td>Select the name of the file containing the subscriber/pool records with inconsistencies to be cleaned from the pulldown menu.</td>
<td>Format: Pulldown menu. Range: List of existing audit files. Default: Blank</td>
</tr>
</tbody>
</table>

Table 6-19  State Table Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Type</td>
<td>Displays the type of process running. Processes are: Single Subscriber Audit or Pool Audit, Complete Database Audit, and Clean.</td>
</tr>
</tbody>
</table>
| Result Logs | Displays the name of the log files generated by the audit/clean process. Filename format: For the audit process:  
  • Audit_<xx>_201503142216.dbauditor  
  • Audit_<xx>_201503142216.ixml  
For the clean process:  
  • Audit_<xx>_201503142216.dbauditor  
  • Clean_<xx>_201503150216.ixml  
The filenames in this column are hyperlinks. Clicking on a link pops up a window and displays the contents of the file as text. Right-clicking a link allows you to save the file. |
### Table 6-19  (Cont.) State Table Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Started</td>
<td>Displays the time when the audit/clean process was started.</td>
</tr>
<tr>
<td>Time Completed</td>
<td>Displays the time when the audit/clean process was completed.</td>
</tr>
<tr>
<td>Audited subscriber and pool count</td>
<td>Displays the number of subscriber or pool records audited/scanned.</td>
</tr>
<tr>
<td>Inconsistent subscriber and pool count</td>
<td>Displays the number of subscriber or pool records that have inconsistency.</td>
</tr>
<tr>
<td>Cleaned subscriber and pool count</td>
<td>Displays the number of subscriber or pool records that were deleted.</td>
</tr>
<tr>
<td>State</td>
<td>Displays the state of the audit/clean process. States are: In Progress, Completed, Failed, Aborted, and Paused.</td>
</tr>
</tbody>
</table>

### Viewing Database Audit Status

The status of all in-progress and completed audits is displayed in the State Table at the bottom of the Database Auditor page. The table displays the audit and clean processes that have occurred, and includes the process type, the name of the log file generated for the process, the number of audited, inconsistent, and/or cleaned subscribers and pools, and the state of the audit/clean process.

To view the status of audits:

1. Select **UDR > Maintenance > Database Auditor**.

   The Database Auditor page appears. All audits are displayed in tabular form. The display fields are described in Database Auditor elements.

   **Note:** To change the order of the records in the table, click the header on which you want to sort. Records will be reordered in descending order (or vice versa when clicked again).

When UDRBE is in congestion, the abort/clean log file State in the State Table changes from In Progress to Paused. When the congestion clears, the paused process will automatically change back to the state of In Progress. When the audit/clean process fails, a process in the state of In Progress automatically changes to Failed. Alarm 13368 is raised when the process fails, and the failure is mentioned in the log file.

### Auditing a Single Subscriber or Pool

The Database Auditor page allows you to audit a single subscriber or pool for index inconsistencies.
You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to audit a subscriber/pool. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

To audit a subscriber or pool:

1. **Select UDR > Maintenance > Database Auditor.**
   The Database Auditor page appears. The fields on this page are described in Database Auditor elements.

2. In the Single Subscriber or Pool Audit section of the page:
   a. Select the **Key Type** you will be entering in **Key Value**.
   b. Enter the **Key Value** that identifies the subscriber or pool to be checked for inconsistencies. This value must exist in the database.
   c. In **Result File Name**, define a name to be used for the log file.
   d. Click **Audit**.

The single subscriber/pool audit runs. The status of the audit displays at the bottom of the page in the State Table. Once the audit completes, the status displays as Completed, and the number of inconsistencies found is listed.

### Auditing the Complete Database

The Database Auditor page allows you to audit an entire database for subscriber or pool index inconsistencies.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to audit a database. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

To audit a complete database:

1. **Select UDR > Maintenance > Database Auditor.**
   The Database Auditor page appears. The fields on this page are described in Database Auditor elements.

2. In the Complete Database Audit section of the page:
   a. Define a name to be used for the log file in **Result File Name**.
   b. Click **Audit**.

The complete subscriber/pool audit runs. The status of the audit displays at the bottom of the page in the State Table. Once the audit completes, the status displays as Completed, and the number of inconsistencies found are listed.

### Deleting Subscribers and Pools with Inconsistencies

The Database Auditor page allows you to delete subscriber or pool records with inconsistencies that were found while running an audit.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to clean a database. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.
To clean a database that has been audited:

1. Select UDR > Maintenance > Database Auditor.

   The Database Auditor page appears. The display fields are described in Database Auditor elements.

2. In the Clean section of the page:
   a. Select the audit file to clean from the Input File Name pulldown menu.
   b. Once the desired file is displayed in the pop up window, click OK.
      The selected file displays in the Input File Name field.
   c. Click Clean.

   The clean process runs. The status of this process displays at the bottom of the page in the State Table. Once the clean process completes, the status changes from In Progress to Completed, and the number of cleaned (or removed) subscriber and pool records is listed. If desired, the deleted subscribers and pools can now be re-provisioned.

**Aborting an Audit**

An audit or clean process can be aborted from the Database Auditor page.

You can only perform this task when logged into the Active Primary NOAMP. Note that you must have permission to abort an audit. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

To abort an audit or clean process:

1. Select UDR > Maintenance > Database Auditor.

   The Database Auditor page appears.

2. In the State Table section of the page, click to select the audit or clean process to be aborted. The selected process must be in a state of In Progress to be aborted.

   At the bottom of the page, the Abort button is now enabled.

3. Click Abort to stop the audit/clean in progress.

   A warning message pops up. To continue the abort, click OK. The abort ends the audit/clean process, and the process in the State Table displays with a State of Aborted. Once aborted, this process can be restarted by specifying the related filename in the audit/clean section of the page and clicking the Audit or Clean button.

**Command Log Export Status**

Command log export operations can be viewed and their statuses can be monitored from this page. An export is initiated from the Command Log Export Options page located on the UDR Configuration menu.

**Command Log Export Status elements**

This table describes elements on the Command Log Export Status Elements page. Note that you must have permission to view this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.
### Table 6-20 Command Log Export Status Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command Log Export File</td>
<td>Name of the command log export file; filename is in the format of</td>
</tr>
<tr>
<td></td>
<td>commandLog_export_&lt;yyyymmddhhmm&gt;.csv.zip, where the date/time is in local time.</td>
</tr>
<tr>
<td>Time Started</td>
<td>Time the command log export was started in local time; includes date and time.</td>
</tr>
<tr>
<td>Time Completed</td>
<td>Time the command log export was completed in local time; includes date and time.</td>
</tr>
<tr>
<td>Records Count</td>
<td>Number of command logs exported</td>
</tr>
<tr>
<td>Status</td>
<td>Status of the command log export; options are Initializing, Queue, In Progress,</td>
</tr>
<tr>
<td></td>
<td>Transferring, Completed, and Failed.</td>
</tr>
</tbody>
</table>

### Viewing Command Log Export Status

Command log export operations that have occurred in the past 24 hours can be viewed and their statuses can be monitored from the Command Log Export Status page. The table displays the command log export file name, the time the export started and completed, the number of log files exported, and the status of the export.

Note that you must have permission to view this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

To view the status of exports:


The Command Log Export Status page appears. All exports are displayed in tabular form. The display fields are described in Command Log Export Status elements.

**Note:** To change the order of the records in the table, click the header on which you want to sort. Records will be reordered in descending order (or vice versa when clicked again).

### Ud Client Connection Status

Use this page to view the status of LDAP and SOAP connections between the Ud client and Ud server. The status of the LDAP and SOAP connections are only displayed if the Ud client feature is enabled and settings on the Ud Remote Server Configuration page have been configured. SOAP connection information is not displayed if the SOAP connection is disabled. The connection status information is refreshed only when the page is refreshed.

This page also allows the LDAP and SOAP connections to be enabled or disabled once the Ud client feature is enabled and configured.
Ud Client Connection Status elements

This table describes elements on the Ud Client Connection Status page. Note that you must have permission to view this page. Permission groups are defined on the Main Menu > Administration > Access Control > Groups page.

Table 6-21 Ud Client Connection Status Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Id</td>
<td>Contains two types of values: total number of connections to the specified remote server IP address, and the unique connection number for each of these LDAP/SOAP connections (connection number is assigned automatically by UDR). Note: The connection numbers only appear when the plus symbol in the Connection Status field is clicked, expanding and the list of connections for the IP address.</td>
</tr>
<tr>
<td>Connection Type</td>
<td>Type of connection established with the remote server: LDAPConn or SOAPConn</td>
</tr>
<tr>
<td>Ud Remote Server Name</td>
<td>Configured name of the remote Ud Server to which the connection is made (as defined on the UDR &gt; Configuration &gt; Ud Client &gt; Ud Remote Server Configuration page)</td>
</tr>
<tr>
<td>Remote IP</td>
<td>Configured host IPv4 address for this remote server (as defined on the UDR &gt; Configuration &gt; Ud Client &gt; Ud Remote Server Configuration page)</td>
</tr>
<tr>
<td>Remote Port</td>
<td>Configured port for this remote server (as defined on the UDR &gt; Configuration &gt; Ud Client &gt; Ud Remote Server Configuration page)</td>
</tr>
</tbody>
</table>
### Table 6-21 (Cont.) Ud Client Connection Status Elements

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Connection Status  | Contains two types of values: total number of connections to the specified remote server IP address, and the status for each of these connections. Status values are Down, Forming, InService, Degraded, or Busy. Note: The status of each connection only appears when the plus symbol is clicked, expanding the list of connections for the IP address.  
  - *Down*: when LDAP connections are disabled or no TCP connection has yet been successfully established  
  - *Forming*: when a TCP connection has been attempted but a successful LDAP bind response has not yet been received  
  - *InService*: when a TCP connection has been sent, a successful LDAP bind response has been received, and no congestion/busy condition is occurring  
  - *Degraded*: when the connection is established but is experiencing congestion  
  - *Busy*: when the connection is established but an LDAP search response indicates the Ud server is busy |
| Admin State        | Indicates whether the LDAP/SOAP connection is Enabled or Disabled from this page.                                                                                                                                 |
• disable the SOAP connection to the Ud server if only the LDAP database is used for looking up subscribers/pools (and the SOAP publish/subscribe interface is not used).

• disable LDAP/SOAP connections before changing LDAP/SOAP connection-related information on the **UDR > Configuration > Ud Client > Ud Remote Server Configuration** page.

• enable LDAP/SOAP connections after changing LDAP/SOAP connection-related information on the **UDR > Configuration > Ud Client > Ud Remote Server Configuration** page.

(If needed, the SOAP interface can be completely disabled by unchecking the **Ud SOAP Interface Enabled** checkbox on the **UDR > Configuration > Ud Client > Ud Client Options** page.)

You can only perform this task when logged into the active primary NOAMP server. Note that you must have permission to edit this page. Permission groups are defined on the **Main Menu > Administration > Access Control > Groups** page.

1. Select **UDR > Maintenance > Ud Client > Connection Status**.

   The Ud Client Connection Status page appears.

2. Click to select the SOAP or LDAP header row (only) to be enabled/disabled.

   If the connection you clicked on is currently enabled, the **Disable** button is now enabled. If the connection you clicked on is currently disabled, the **Enable** button is now enabled.

3. Click the **Enable/Disable** button.

   If enablement/disablement succeeds, the changes are saved and you remain on the same page, and a successful update message appears.

When the SOAP interface is disabled, the SOAP connection status displays as **Disabled**, Connection Status displays no SOAP connections (only the header row), and the **Disable** and **Enable** buttons are not active for SOAP connections. When a SOAP and LDAP interface is disabled, the Admin State displays **Disabled**, Connection Status displays 0 SOAP and LDAP connections, and the **Disable** and **Enable** buttons are not active for either SOAP or LDAP connections.