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This chapter includes sections on the purpose, scope, audience, and organization of this guide; how to contact Oracle for assistance; and how to locate product documentation on the Oracle Customer Support site.
Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2017</td>
<td>Accessibility changes throughout.</td>
</tr>
</tbody>
</table>

Overview

The SS7/Sigtran User’s Guide and Help provide an overview of SS7/Sigtran functions, and provide procedures to use to configure Adjacent Server Groups, Local Signaling Points, Local SCCP Users, Remote Signaling Points, Remote MTP3 Users, Link Sets, Links, and Routes.

Scope and Audience

This guide is intended for trained and qualified system operators and administrators who are responsible for managing an SS7/Sigtran system.

Manual Organization

This manual is organized into the following chapters:

- **Introduction** contains general information about the SS7/Sigtran User’s Guide, the scope, audience, and organization of this manual, and how to contact Oracle for assistance.
- **User Interface Introduction** describes the organization and usage of the application 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.
- **SS7 Configuration** describes the GUI pages and procedures for viewing SS7 network status, and for performing configuration and maintenance tasks.
- **SS7 Maintenance** describes the SS7 maintenance menu, which provides maintenance and troubleshooting capabilities on Local SCCP Users, Remote Signaling Points, Remote MTP3 Users, Link Sets, and Links.
- **Command Line Interface** describes a method for bulk loading SS7 configuration data and for validating and executing command scripts.

Documentation Admonishments

Admonishments are icons and text throughout this manual that alert the reader to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage.
Table 1: Admonishments

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
</table>
| ![DANGER](image) | Danger:  
(This icon and text indicate the possibility of personal injury.) |
| ![WARNING](image) | Warning:  
(This icon and text indicate the possibility of equipment damage.) |
| ![CAUTION](image) | Caution:  
(This icon and text indicate the possibility of service interruption.) |
| ![TOPPLE](image) | Topple:  
(This icon and text indicate the possibility of personal injury and equipment damage.) |

Related Specifications

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

Locate Product Documentation on the Oracle Help Center Site

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

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.
Customer Training

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

http://education.oracle.com/communication

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

www.oracle.com/education/contacts

My Oracle Support (MOS)

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

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

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

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

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

Emergency Response

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

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

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

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.
Chapter 2

User Interface Introduction

Topics:

- User Interface Organization.....18
- Missing Main Menu options.....25
- Common Graphical User Interface Widgets.....25

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

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

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

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

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

- Communication Agent
- Diameter Common
- Diameter
- UDR (User Data Repository)
- MAP-Diameter IWF
- RADIUS (Remote Authentication Dial-In User Service)
- SBR (Session Binding Repository)
- Policy and Charging
- DCA (DOIC Capabilities Announcement) Framework

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

- Transport Manager
- SS7/Sigtran
- RBAR (Range Based Address Resolution)
- FABR (Full Address Based Resolution)
- GLA (Gateway Location Application)
- MAP-Diameter IWF
- RADIUS
- SBR
- Mediation
- Policy and Charging
- DCA Framework
- IPFE (IP Front End)
Note that the System OAM (SOAM) Main Menu options differ from the Network OAM (NOAM) options. Some Main Menu options are configurable from the NOAM server and view-only from the SOAM (SOAM) server. This remains true for other applications.

User Interface Elements

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

**Table 2: User Interface Elements**

<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,                                                                ínhformation:</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>
<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 <em>Optional Layout Element Toolbar</em>.</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</td>
</tr>
</tbody>
</table>
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.

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

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

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

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

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

*Table 3: Main Menu Options*

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Function</th>
</tr>
</thead>
</table>
| Administration | The Administration menu allows the user to:  
  - General Options. Configure options such as password history and expiration, login message, welcome message, and the number of failed login attempts before an account is disabled  
  - Set up and manage user accounts  
  - Configure group permissions  
  - View session information  
  - Manage sign-on certificates  
  - Authorize IP addresses to access the user interface  
  - Configure SFTP user information  
  - View the software versions report  
  - Upgrade management including backup and reporting |
<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Function</th>
</tr>
</thead>
</table>
| Function            | • Authenticate LDAP servers  
|                     | • Configure SNMP trapping services  
|                     | • Configure an export server  
|                     | • Configure DNS elements  
| Configuration       | On the NOAM, allows the user to configure:  
|                     | • Network Elements  
|                     | • Network Devices  
|                     | • Network Routes  
|                     | • Services  
|                     | • Servers  
|                     | • Server Groups  
|                     | • Resource Domains  
|                     | • Places  
|                     | • Place Associations  
|                     | • Interface and Port DSCP  
| Alarms and Events   | Allows the user to view:  
|                     | • Active alarms and events  
|                     | • Alarm and event history  
|                     | • Trap log  
| Security Log        | Allows the user to view, export, and generate reports from security log history.  
| Status and Manage   | Allows the user to monitor the individual and collective status of Network Elements, Servers, HA functions, Databases, KPIs, system Processes, and Tasks. The user can perform actions required for server maintenance, database management, data, and ISO file management.  
| Measurements        | Allows the user to view and export measurement data.  
| Transport Manager   | On the SOAM, allows the user to configure adjacent nodes, configuration sets, or transports. A maintenance option allows the user to perform enable, disable, and block actions on the transport entries. This option only appears with the DSR application.  
| (optional)          |  
| Communication Agent | Allows the user to configure Remote Servers, Connection Groups, and Routed Services. The user can perform actions to enable, disable, and block connections. Also allows the user to monitor the status of Connections, Routed Services, and HA Services.  
| (optional)          |  
| SS7/Sigtran (optional) | On the SOAM, allows the user to configure various users, groups, remote signaling points, links, and other items associated with SS7/Sigtran; perform maintenance and troubleshooting activities; and provides a command line interface for bulk loading SS7 configuration data. This option only appears with the DSR application.  
<p>|</p>
<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter Common (optional)</td>
<td>Allows the user to view or configure:</td>
</tr>
<tr>
<td></td>
<td>• Dashboard, configure on the NOAM; view on both OAMs</td>
</tr>
<tr>
<td></td>
<td>• Network Identifiers on the SOAM - MCC Ranges</td>
</tr>
<tr>
<td></td>
<td>• Network Identifiers on the NOAM - MCCMNC and MCCMNC Mapping</td>
</tr>
<tr>
<td></td>
<td>• MPs (on the SOAM) - editable Profile parameters and Profile Assignments</td>
</tr>
<tr>
<td></td>
<td>The DSR Bulk Import and Export functions are available on both OAMs for the data configured on that OAM.</td>
</tr>
<tr>
<td>Diameter (optional)</td>
<td>Allows the user to configure, modify, and monitor Diameter routing:</td>
</tr>
<tr>
<td></td>
<td>• On the NOAMP, Diameter Topology Hiding and Egress Throttle List configuration</td>
</tr>
<tr>
<td></td>
<td>• On the SOAM, Diameter Configuration, Maintenance, Reports, Troubleshooting with IDIH, AVP Dictionary, and Diameter Mediation configuration</td>
</tr>
<tr>
<td>UDR (User Data Repository) (optional)</td>
<td>Allows the user to add, edit, store, and manage subscriber and pool data. The user can also monitor the import, export, and subscribing client status. This option only appears with the UDR application.</td>
</tr>
<tr>
<td>RBAR (Range-Based Address Resolution) (optional)</td>
<td>Allows the user to configure the following Range-Based Address Resolution (RBAR) settings:</td>
</tr>
<tr>
<td></td>
<td>• Applications</td>
</tr>
<tr>
<td></td>
<td>• Exceptions</td>
</tr>
<tr>
<td></td>
<td>• Destinations</td>
</tr>
<tr>
<td></td>
<td>• Address Tables</td>
</tr>
<tr>
<td></td>
<td>• Addresses</td>
</tr>
<tr>
<td></td>
<td>• Address Resolutions</td>
</tr>
<tr>
<td></td>
<td>• System Options</td>
</tr>
<tr>
<td></td>
<td>This is accessible from the SOAM only. This option only appears with the DSR application.</td>
</tr>
<tr>
<td>FABR (Full Address Based Resolution) (optional)</td>
<td>Allows the user to configure the following Full Address Based Resolution (FABR) settings:</td>
</tr>
<tr>
<td></td>
<td>• Applications</td>
</tr>
<tr>
<td></td>
<td>• Exceptions</td>
</tr>
<tr>
<td></td>
<td>• Default Destinations</td>
</tr>
<tr>
<td></td>
<td>• Address Resolutions</td>
</tr>
<tr>
<td></td>
<td>• System Options</td>
</tr>
<tr>
<td></td>
<td>This is accessible from the SOAM only. This option is only available with the DSR application.</td>
</tr>
<tr>
<td>Gateway Location Application (optional)</td>
<td>On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for:</td>
</tr>
<tr>
<td></td>
<td>• Exceptions</td>
</tr>
<tr>
<td>Menu Item</td>
<td>Function</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>• Options</td>
<td>GLA can deploy with Policy DRA (in the same DA-MP or a separate DA-MP). This option only appears with the DSR application.</td>
</tr>
</tbody>
</table>
| MAP-Diameter Interworking (optional) | On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for the DM-IWF DSR Application:  
  • DM-IWF Options  
  • Diameter Exception  
On the NOAMP, allows the user to perform configuration tasks, edit options, and view elements for the MD-IWF SS7 Application:  
  • MD-IWF Options  
  • Diameter Realm  
  • Diameter Identity GTA  
  • GTA Range to PC  
  • MAP Exception  
  • CCNDC Mapping  
This option only appears with the DSR application. |
| RADIUS (Remote Authentication Dial-In User Service) (optional) | Allows the user to perform configuration tasks, edit system options, and view elements for:  
  • Network Options  
  • Message Authenticator Configuration Sets  
  • Shared Secret Configuration Sets  
  • Ingress Status Server Configuration Sets  
  • Message Conversion Configuration Sets  
  • NAS Node  
This option only appears with the DSR application. |
| SBR (Session Binding Repository) (optional) | Allows the user to perform configuration tasks, edit system options, and view elements for:  
  • SBR Databases  
  • SBR Database Resizing Plans  
  • SBR Data Migration Plans  
  • Database Options  
Additionally, on the NOAMP, users are allowed to perform maintenance tasks, edit options, and view elements for:  
  • Maintenance  
    • SBR Database Status  
    • SBR Status  
    • SBR Database Reconfiguration Status  
This option only appears with the DSR application. |
<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediation</td>
<td>Allows the user to make routable decisions to end the reply, drop the message, or set the destination realm.</td>
</tr>
</tbody>
</table>
| Policy and Charging (optional) | On the NOAMP, allows the user to perform configuration tasks, edit options, and view elements for:  
  - General Options  
  - Access Point Names  
  - Policy DRA  
    - PCRF Pools  
    - PCRF Sub-Pool Selection Rules  
    - Network-Wide Options  
  - Online Charging DRA  
    - OCS Session State  
    - Realms  
    - Network-Wide Options  
  - Alarm Settings  
  - Congestion Options  
  
  Additionally on the NOAMP, users are allowed to perform maintenance tasks, edit options, and view elements for:  
  - Maintenance  
    - SBR Database Status  
    - SBR Status  
    - SBR Database Reconfiguration Status  
    - Policy Database Query  
  
  On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for:  
  - General Options  
  - Access Point Names  
  - Policy DRA  
    - PCRFs  
    - Binding Key Priority  
    - PCRF Pools  
    - PCRF Pool to PRT Mapping  
    - PCRF Sub-Pool Selection Rules  
    - Policy Clients  
    - Suspect Binding Removal Rules  
    - Site Options  
  
  - Online Charging DRA  
    - OCSs  
    - CTFs |
### Menu Item

<table>
<thead>
<tr>
<th>Function</th>
</tr>
</thead>
</table>
| • OCS Session State  
• Realms  
• Error Codes  
• Alarm Settings  
• Congestion Options  
This option only appears with the DSR application. |

<table>
<thead>
<tr>
<th>DCA Framework (optional)</th>
</tr>
</thead>
</table>
| Allows the user to perform configuration tasks, edit system options, and view elements for DCA applications:  
• Custom MEALs (Measurements, Events, Alarms, and Logs)  
• General Options  
• Trial MPs assignment  
• Application Control  
• System Options |

<table>
<thead>
<tr>
<th>IPFE (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allows the user to configure IP Front End (IPFE) options and IP List TSAs. This is accessible from the SOAM server only. This option only appears with the DSR application.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launches the Help system for the user interface</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Legal Notices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Disclaimers and Notices</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Logout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allows the user to log out of the user interface</td>
</tr>
</tbody>
</table>

## Missing Main Menu options

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

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

## Common Graphical User Interface Widgets

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

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

System Login Page

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

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

Customizing the Login Message

Before logging in, the System Login page appears. You can create a login message that appears just below the Log In button on the System Login page.
Figure 1: Oracle System Login

1. From the Main Menu, click Administration > General Options. The General Options Administration page appears.

2. Locate LoginMessage in the Variable column.

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

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

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

Accessing the DSR Graphical User Interface

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

For information on configuring Single Sign-On certificates, see OAM > Administration > Access Control > Certificate Management in the DSR online help.
After the certificates have been configured, you can log into the DSR GUI on any NOAM or SOAM, and then access the DSR GUI on other servers (NOAM or other SOAMs) without having to re-enter your login credentials.

1. In the browser URL field, enter the fully qualified hostname of the NOAM server, for example https://dsr-no.yourcompany.com.
   When using Single Sign-On, you cannot use the IP address of the server.

2. When prompted by the browser, confirm that the server can be trusted.
   The System Login page appears.

3. Enter the Username and Password for your account.
   The DSR GUI for the NOAM appears.

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

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

**Main Menu Icons**

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

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Folder" /></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><img src="image" alt="Config File" /></td>
<td>Config File</td>
<td>Contains operations in an Options page.</td>
</tr>
<tr>
<td><img src="image" alt="File with Magnifying Glass" /></td>
<td>File with Magnifying Glass</td>
<td>Contains operations in a Status View page.</td>
</tr>
<tr>
<td><img src="image" alt="File" /></td>
<td>File</td>
<td>Contains operations in a Data View page.</td>
</tr>
<tr>
<td><img src="image" alt="Multiple Files" /></td>
<td>Multiple Files</td>
<td>Contains operations in a File View page.</td>
</tr>
<tr>
<td><img src="image" alt="File with Question Mark" /></td>
<td>File with Question Mark</td>
<td>Contains operations in a Query page.</td>
</tr>
</tbody>
</table>
User Interface Introduction

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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: Paginated Table](#)

### Scrollable Tables Display

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: Paginated Table](#)
Figure 3: Scrollable Table

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

Forms

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

Username: [Default 5-16 characters]

Group: [Default = Unassigned]

Time Zone: [Default = UTC]

Maximum Concurrent Logins: [Default = 1, Range = 0-50]

Session Inactivity Limit: [Default = 120, Range = 0-120]

Temporary Password: [Default = 0-16 characters]

Re-Type Password: [Default = 0-16 characters]

Figure 4: Form Page

Tabbed pages

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

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

User Account Usage Report

Report Generated: Fri Jun 19 19:00:58 2009 UTC
From: Unknown Network SNMP on host tcks501701
Report Version: 1.0
User: guiadmin

<table>
<thead>
<tr>
<th>Username</th>
<th>Date of Last Login</th>
<th>Days Since Last Login</th>
<th>Account Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>guiadmin</td>
<td>2009-06-19 19:00:17</td>
<td>0</td>
<td>enabled</td>
</tr>
</tbody>
</table>

End of User Account Usage Report

Figure 7: Report Output
Customizing the Splash Page Welcome Message

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

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

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

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

Column Headers (Sorting)

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

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

![Figure 8: Sorting a Table by Column Header](image)

Page Controls

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

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

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

<table>
<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>
</tbody>
</table>
Some Action buttons take you to another page.

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

**Table 6: Submit Buttons**

<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>

**Clear Field Control**

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

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

![Clear Field Control X](image)

**Optional Layout Element Toolbar**

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

![Optional Layout Element Toolbar](image)

**Figure 10: Optional Layout Element Toolbar**

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

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

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

![Image of automatic error notification]

**Figure 11: Automatic Error Notification**

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

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

Opening an Element in the Toolbar

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

1. Click the text of the element or the triangle icon to open an element.
   The selected element opens and overlays the work area.

2. Click X to close the element display.

Filters

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

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

- **Network Element** – When enabled, the Network Element filter limits the data viewed to a single Network Element.
  **Note:** Once enabled, the Network Element filter affect all pages that list or display data relating to the Network Element.

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

- **Display Filter** – The display filter limits the data viewed to data matching the specified criteria.
Once a field is selected, it cannot be selected again. All specified criteria must be met in order for a row to be displayed.

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

![Filter Control Elements](image)

**Figure 12: Examples of Filter Styles**

### Filter Control Elements

This table describes filter control elements of the user interface.

<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 <em>Is Null</em> in the specified field.</td>
</tr>
</tbody>
</table>

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

### Filtering on the Network Element

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

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

1. Click Filter in the optional layout element toolbar.
2. Enter a duration for the Collection Interval filter.
   The duration must be a numeric value.
3. Select a unit of time from the pulldown menu.
   The unit of time can be seconds, minutes, hours, or days.
4. Select Beginning or Ending from the pulldown menu.
5. Click Go to filter on the selection, or click Reset to clear the selection.

Records are displayed according to the specified criteria.

Filtering Using the Display Filter

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

1. Click Filter in the optional layout element toolbar.
2. Select a field name from the Display Filter pulldown menu.
   This selection specifies the field in the table that you want to filter on. The default is None, which indicates that you want all available data displayed.
   The selected field name displays in the Display Filter field.
3. Select an operator from the operation selector pulldown menu.
4. Enter a value in the value field.
   This value specifies the data that you want to filter on. For example, if you specify Filter=Severity with the equals (=) operator and a value of MINOR, the table would show only records where Severity=MINOR.
5. For data tables that support compound filtering, click Add to add another filter condition. Then repeat steps 2 through 4.
   Multiple filter conditions are joined by an AND operator.
6. Click Go to filter on the selection, or click Reset to clear the selection.

Records are displayed according to the specified criteria.
Pause Updates

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

Max Records Per Page Controls

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

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

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

3. Click OK or Apply.

   OK saves the change and returns to the previous page.

   Apply saves the change and remains on the same page.

The maximum number of records displayed is changed.
Chapter 3

SS7 Configuration

Topics:
- SS7 Network Configuration overview.....39
- Adjacent Server Groups.....40
- Local Signaling Points.....44
- Local SCCP Users.....49
- Remote Signaling Points.....53
- Remote MTP3 Users.....56
- Link Sets.....59
- Links.....63
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- SCCP Options.....71
- MTP3 Options.....72
- M3UA Options.....74
- Local Congestion Options.....75
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SS7/Sigtran provides the Signaling Network Interface for the MD-IWF SS7 Application. The interface supports standards-based M3UA, MTP3, and SCCP signaling.

This chapter describes GUI pages and procedures for viewing SS7 network status and performing configuration and maintenance tasks for the Signaling Network Interface for the MD-IWF SS7 Application.
SS7 Network Configuration overview

The SS7/Sigtran > Configuration GUI pages are used to configure the SS7 networking. Each configuration menu item aligns with an SS7 network configuration task. The items appear on the menu in the order that SS7 configuration must be performed. This section explains the use of the configuration items.

Any fields that require unique data for SS7/Sigtran configuration must be unique within the site but not across sites.

Table 8: High-level Overview of SS7 Configuration provides a high-level view of the SS7 network configuration and identifies the menu item that supports each task.

Command Line Interface provides how to configure bulk-load data.

<table>
<thead>
<tr>
<th>#</th>
<th>Task</th>
<th>Main Menu &gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create signaling Network Element.</td>
<td>Configuration &gt; Network Elements</td>
</tr>
<tr>
<td>2</td>
<td>Add MP and SOAM servers to the signaling Network Element.</td>
<td>Configuration &gt; Servers</td>
</tr>
<tr>
<td>3</td>
<td>Create Server Groups for the MP Servers.</td>
<td>Configuration &gt; Server Groups</td>
</tr>
<tr>
<td>4</td>
<td>Configure Transport Manager</td>
<td>Transport Manager &gt; Configuration &gt; Adjacent Node</td>
</tr>
<tr>
<td></td>
<td>• Adjacent Nodes, for use as Adjacent Server Members in SS7/Sigtran</td>
<td>Transport Manager &gt; Configuration &gt; Configuration Sets</td>
</tr>
<tr>
<td></td>
<td>Adjacent Server Groups configuration</td>
<td>Transport Manager &gt; Configuration &gt; Transports</td>
</tr>
<tr>
<td></td>
<td>• Transports (and Transport Configuration Sets if needed), for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>selection as Associations in SS7/Sigtran configuration.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Create Adjacent Server Groups for each IP Signaling point that the</td>
<td>SS7/Sigtran &gt; Configuration &gt; Adjacent Server Groups (see</td>
</tr>
<tr>
<td></td>
<td>SS7 application will connect to.</td>
<td>Adjacent Server Groups</td>
</tr>
<tr>
<td>6</td>
<td>Create Local Signaling Points for each point code that identifies</td>
<td>SS7/Sigtran &gt; Configuration &gt; Local Signaling Points (see</td>
</tr>
<tr>
<td></td>
<td>an MP Server for the SS7 application.</td>
<td>Local Signaling Points</td>
</tr>
<tr>
<td>7</td>
<td>Create a Local SCCP User for each SS7 application hosted by SS7-MP</td>
<td>SS7/Sigtran &gt; Configuration &gt; Local SCCP Users (see</td>
</tr>
<tr>
<td></td>
<td>Servers.</td>
<td>Local SCCP Users).</td>
</tr>
<tr>
<td>8</td>
<td>Create remote signaling points for each adjacent signaling point</td>
<td>SS7/Sigtran &gt; Configuration &gt; Remote Signaling Points (see</td>
</tr>
<tr>
<td></td>
<td>that the SS7 application will connect to and each remote</td>
<td>Remote Signaling Points</td>
</tr>
<tr>
<td></td>
<td>destination that the SS7 application will route messages to.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Create Remote MTP3 Users for each Subsystem Number that the SS7</td>
<td>SS7/Sigtran &gt; Configuration &gt; Remote MTP3 Users (see</td>
</tr>
<tr>
<td></td>
<td>application will route messages to.</td>
<td>Remote MTP3 Users Maintenance).</td>
</tr>
<tr>
<td>#</td>
<td>Task</td>
<td>Main Menu &gt;</td>
</tr>
<tr>
<td>----</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>10</td>
<td>Create a Link Set for each LSP and for each Adjacent RSP.</td>
<td>SS7/Sigtran &gt; Configuration &gt; Link Sets (see Link Sets)</td>
</tr>
<tr>
<td>11</td>
<td>Create Links that reference each Association and Link Set.</td>
<td>SS7/Sigtran &gt; Configuration &gt; Links (see Links)</td>
</tr>
<tr>
<td>12</td>
<td>Create routes for each RSP and link set.</td>
<td>SS7/Sigtran &gt; Configuration &gt; Routes (see Routes)</td>
</tr>
<tr>
<td>13</td>
<td>Edit the SCCP, MTP3, and M3UA options as desired.</td>
<td>SS7/Sigtran &gt; Configuration &gt; SCCP Options (see SCCP Options) SS7/Sigtran &gt; Configuration &gt; MTP3 Options (see MTP3 Options) SS7/Sigtran &gt; Configuration &gt; M3UA Options (see M3UA Options)</td>
</tr>
<tr>
<td>14</td>
<td>Enable the LSUs.</td>
<td>SS7/Sigtran &gt; Maintenance &gt; Local SCCP Users (see Local SCCP Users Maintenance)</td>
</tr>
<tr>
<td>15</td>
<td>Enable the Links.</td>
<td>SS7/Sigtran &gt; Maintenance &gt; Links (see Link Maintenance)</td>
</tr>
</tbody>
</table>

**Adjacent Server Groups**

An Adjacent Server Group is a collection of Adjacent Servers that implements a distributed IP signaling function. The group represents a set of Adjacent Nodes that share a Point Code on the Signaling Gateway.

**Note:** Adjacent Servers are configured as Adjacent Nodes on the Transport Manager > Configuration > Adjacent Node pages.

An adjacent Remote Signaling Point (RSP) is associated with one Adjacent Server Group.

On the Adjacent Server Groups page, Adjacent Servers can be grouped that belong to the same Signaling Gateway. For example, an Adjacent Server Group can refer to a Signaling Network Element with which this application is associated.

On the SS7/Sigtran > Configuration > Adjacent Server Groups page, you can perform the following actions:

- The **Filter** allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, ! =, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the **GO** button to enable the filter. The **RESET** button will reset the filter.
- Sort the list entries in ascending or descending order by Signaling Network Element Name, Adjacent Server Group Identifier, and Adjacent Server Group Member(s), by clicking the column heading.
- Click the **Insert** button.


If the maximum number of Adjacent Server Groups already exists in the system, the SS7/Sigtran > Configuration > Adjacent Server Groups [Insert] page will display an error message.
• Select the Adjacent Server Group from the list, then **Edit** button. The SS7/Sigtran > Configuration > Adjacent Server Groups [Edit] page opens. You can edit the selected Adjacent Server Groups. See **Editing an Adjacent Server Group**.

• Select the Adjacent Server Group from the list, then click the **Delete** button to remove the selected Adjacent Server Group Member(s). See **Deleting an Adjacent Server Group**.

**Adjacent Server Groups elements**

*Table 9: Adjacent Server Groups Elements* describes the information on the SS7/Sigtran > Configuration > Adjacent Server Groups page. Data input notes apply only on the insert and edit pages.

**Table 9: Adjacent Server Groups Elements**

<table>
<thead>
<tr>
<th>Element (* indicates a required files)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Signaling Network Element Name</td>
<td>Identifies the Signaling Network Element to which the adjacent server group is being added.</td>
<td>View-only</td>
</tr>
<tr>
<td>*Adjacent Server Group Identifier</td>
<td>Unique identifier used to label an adjacent server group.</td>
<td>Format: field Range: up to 32 characters</td>
</tr>
<tr>
<td>*Adjacent Server Group Member(s)</td>
<td>The list of Adjacent Nodes that make up the adjacent server group. An Adjacent Node can be a member of only one adjacent server group. <strong>Note:</strong> If there is more than one adjacent server group member, each is separated by a comma.</td>
<td>Format: field Range: up to 32 characters</td>
</tr>
<tr>
<td>*Unassigned Adjacent Servers</td>
<td>The list of Adjacent Servers configured in Transport Manager &gt; Configuration &gt; Adjacent Node.</td>
<td>Format: drag-and-drop Range: 1 to 16 entries</td>
</tr>
<tr>
<td>*Adjacent Servers in this Adjacent Server Group</td>
<td>Adjacent server group can refer to a Signaling Network Element with which this application is associated.</td>
<td>Format: drag-and-drop Range: 1 to 16 entries</td>
</tr>
</tbody>
</table>

**Viewing Adjacent Server Groups**

Use this procedure to view the configured Adjacent Server Groups.

Select **SS7/Sigtran > Configuration > Adjacent Servers Groups**.

The SS7/Sigtran > Configuration > Adjacent Server Groups page appears with the configured Adjacent Server Groups listed.

For field definitions, see **Adjacent Server Groups elements**.
Inserting an Adjacent Server Group

Use this task to add an Adjacent Server Group.

**Note:** Adjacent Servers must be configured as Adjacent Nodes: on the **Transport Manager > Configuration > Adjacent Node [Insert]** page, and are listed on the **Transport Manager > Configuration > Adjacent Node** page.

1. Select **SS7/Sigtran > Configuration > Adjacent Server Groups**.
   
   The **SS7/Sigtran > Configuration > Adjacent Server Groups** page appears. For field definitions, see **Adjacent Server Groups elements**.

2. Click **Insert**.
   
   The **SS7/Sigtran > Configuration > Adjacent Server Groups [Insert]** page appears.

3. Enter an **Adjacent Server Group Identifier**.

4. To add an Adjacent Server, click the Adjacent Server name you want to add from the **Unassigned Adjacent Servers** list. You can select multiple individual items by holding down **ctrl** while clicking the item (**ctrl-click**). To move them to **Adjacent Servers in this Adjacent Server Group** click the double arrows (>>) or use the drag drop method (With the left mouse button held down, move the mouse to the **Adjacent Servers in this Adjacent Server Group** then release the left mouse button.) To select a range, select **shift-click**.

   Note: If you need to add an Adjacent Server and no Adjacent Servers are available, you must first define one in **Transport > Configuration > Adjacent Node**. Once you have defined an Adjacent Node, the **Unassigned Adjacent Servers** field will be populated.

5. Perform one of these actions:
   
   - Click **OK** to save the data and exit this page.
   - Click **Apply** to save the data and remain on this page.

   **If OK or Apply is clicked and any of the following conditions exists, an error message appears:**
   
   - Any fields contain a value that is out of the allowed range
   - Any required field is empty (not entered)
   - Adding a new Adjacent Server Group Member would cause the maximum number of **Adjacent Server Group Members** (16) to be exceeded
   - The **Adjacent Server Group Identifier** field value already exists
   - An Adjacent Server Group Member in this Group no longer exists (has been deleted)
   - An Adjacent Server Group Member in this Group was already assigned to another Group (by another user)
   - Adding this **Adjacent Server Group** would cause the maximum number of **Adjacent Server Groups** per site (10) to be exceeded

Editing an Adjacent Server Group

Use this task to add or remove an Adjacent Server in an Adjacent Server Group.

**Note:** Adjacent Servers are configured as Adjacent Nodes on the **Transport Manager > Configuration > Adjacent Node** pages.
Note: An Adjacent Server cannot be removed from an Adjacent Server Group if the Adjacent Node is referenced by a Transport.

1. Select SS7/Sigtran > Configuration > Adjacent Server Groups
   
   The SS7/Sigtran > Configuration > Adjacent Server Groups page appears.

2. Select the Adjacent Server Group from the list, then click Edit.
   

3. To add or remove an Adjacent Server, perform these steps:
   
   • To add an Adjacent Server, click the name in the Unassigned Adjacent Servers list and click the double arrows (>>). You can select multiple individual items by holding down Ctrl while clicking the item (Ctrl-click). To move them to Adjacent Servers in this Adjacent Server Group click the double arrows (>>) or use the drag drop method (With the left mouse button held down, move the mouse to the Adjacent Servers in this Adjacent Server Group then release the left mouse button.) To select a range, select Shift-click.

   Note: If you need to add an Adjacent Server and no Adjacent Nodes are available, you must first configure one refer to the Transport Manager User’s Guide and Help. After an Adjacent Node is configured, the Unassigned Adjacent Servers field is populated.

   • To remove an Adjacent Server from the Adjacent Server Group, click the name in the Adjacent Servers in this Adjacent Server Group list and click the double arrows (<<). You can select more than one Adjacent Server by holding down Ctrl while clicking each name. To select a range, select Shift-click.

4. Perform one of these actions
   
   • Click OK to save the data and exit this page.
   • Click Apply to save the data and remain on this page.
   • Click Cancel to exit this page without saving any the data.

   If OK or Apply is clicked and the selected Adjacent Server Group no longer exists (was deleted by another user), an error message appears.

Deleting an Adjacent Server Group

Deleting an Adjacent Server Group removes the group from the network configuration.

Note: An Adjacent Server Group that is referenced by a Remote Signaling Point cannot be deleted. Use the Deleting a Remote Signaling Point procedure to remove the RSP.

   
   The SS7/Sigtran > Configuration > Adjacent Server Groups page appears.

2. Select the Adjacent Server Group from the list, then click Delete.
   
   A delete confirmation message appears.

3. Click OK to confirm the deletion.
Local Signaling Points

A Signaling Point is a set of signaling equipment represented by a unique point code within an SS7 domain (for example, ANSI, ITU-I, ITU-N, and ITU-N 24-bit Point Code). A Local Signaling Point (LSP) is a logical element representing an SS7 Signaling Point assigned to an MP Server Group.

A Point Code is a unique MTP3 (Message Transfer Part 3) address in a SS7 network. An LSP is uniquely identified by a point code and an SS7 domain.

The LSP assigns the SS7 identity to the MP Server Group. An LSP has an SS7 domain (ANSI, ITU-I, ITU-N, and ITU-N 24-bit Point Code) and a true point code. The LSP may optionally be assigned up to two CPCs (Capability Point Codes), which are point codes that can be shared with other LSPs. The LSP assigns a Server Group that hosts the point code.

The list of configured LSPs on the SS7/Sigtran > Configuration > Local Signaling Points page contains a row for every point code that represents an MP Server Group.

On the SS7/Sigtran > Configuration > Local Signaling Points page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.
- Sort the list entries in ascending or descending order by Local Signaling Point and SS7 Domain, by clicking the column heading.
- Click the Insert button.
  
  The SS7/Sigtran > Configuration > Local Signaling Points [Insert] page opens. You can add a new Local Signaling Point and its values. See Inserting a Local Signaling Point.

  If the maximum number of Local Signaling Points already exists in the system, the SS7/Sigtran > Configuration > Local Signaling Points [Insert] page will display an error message.

- Select the Local Signaling Point from the list, then click the Edit button.
  
  The SS7/Sigtran > Configuration > Local Signaling Points [Edit] page opens. You can edit the selected Local Signaling Points. See Editing a Local Signaling Point.

- Select the Local Signaling Point from the list, then click the Delete button to remove the selected Server Group. See Deleting a Local Signaling Point.
- Select the Local Signaling Point from the list, then click Report button to generate a report of the configured Local Signaling Point. See Generating a Report on Local Signaling Points.

Local Signaling Points elements

Table 10: Local Signaling Points Elements describes the information on the SS7/Sigtran > Configuration > Local Signaling Points pages. Data Input Notes apply only to the Insert and Edit pages.
<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Signaling Network Element Name</td>
<td>Identifies the Signaling Network Element to which the Local Signaling Point is being added.</td>
<td>View-only</td>
</tr>
</tbody>
</table>
| Local Signaling Point Name          | Unique, case-sensitive name of the Local Signaling Point. The default name is auto-generated and populated. You can overwrite the default name. The default name is auto generated from the true point code in the following manner:  
  - Domain: ANSI, true point code configured: 1-1-1  
    Default MTP True Point Code - ANSI_001_001_001  
  - Domain: ITUI, true point code configured: 1-1-1  
    Default: MTP True Point Code - ITUI_1_001_1  
  - Domain: ITUN, true point code configured: 2057  
    Default: MTP True Point Code - ITUN_2057  
  - Domain: ITU-N24, Point Code: 1-1-1  
    Default: MTP True Point Code - ITUN24_001_001_001 | Format: Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit. Range: A 32-character string. |
| *SS7 Domain                         | The SS7 domain in which the node resides. | Format: Drop-down list  
  Note: MD-IWF does not support ITUN24 - ITU National 24-bit point codes. |
| *MTP True Point Code                | The MTP point code that identifies this LSP. Only one LSP can have this MTP True point code. | Format: Text field requires point code format (see Point code formats). |
### Data Input Notes

<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTP Capability Point Code(s)</td>
<td>The MTP capability point code if this LSP shares a point code with one or more other LSPs.</td>
<td>Format: Checkbox and text field. The checkbox(es) must be checked to enable the field. The text field requires point code format (see <em>Point code formats</em>). The MTP Capability Point Code(s) cannot exist in the system as an MTP True Point Code. This field is optional unless the checkbox(es) are checked. If the checkbox(es) are checked, the text field(s) are required.</td>
</tr>
<tr>
<td>Server Group(s)</td>
<td>Server Groups that serve this LSP.</td>
<td>View only</td>
</tr>
<tr>
<td>*Unassigned Server Groups</td>
<td>The list of Servers Groups configured in Configuration &gt; Server Groups. It includes only configured Server Groups that are not already associated with an LSP of the same SS7 Domain.</td>
<td>Format: Drag and drop Range: 1 to 16 entries</td>
</tr>
<tr>
<td>*Server Groups included in this Local Signaling Point</td>
<td>Server Group can refer to a Signaling Network Element with which this application is associated.</td>
<td>Format: Drag and drop Range: 1 to 16 entries</td>
</tr>
</tbody>
</table>

### Point code formats

A point code is a unique (MTP3) address in an SS7 network. This application supports following point code formats based on the selected SS7 domain:

- **ANSI Point Code**
  - Format: NNN-NNN-NNN
  - Range: Point code must comply with ANSI T1.111.8.

- **ITU International Point Code**
  - Format: J-NNN-J
  - Range J can range from 0-7. NNN can range from 0-255.

- **ITU National Point Code**
  - Format: NNNNN
  - Range: NNNNN can range from 0-16383

- **ITU National 24-bit Point Code**
  - Format: NNN-NNN-NNN

---

E73345 Revision 02, March 2017
Range: Each NNN can range from 0 - 255

Note: MD-IWF does not support ITUN24 point codes.

Viewing Local Signaling Points

Use this procedure to view the configured LSPs.

Select SS7/Sigtran > Configuration > Local Signaling Points.

The SS7/Sigtran > Configuration > Local Signaling Points page appears with the configured LSPs listed.

For field definitions, see Local Signaling Points elements.

Inserting a Local Signaling Point

Use this procedure to insert an LSP.

1. Select SS7/Sigtran > Configuration > Local Signaling Points.

   The SS7/Sigtran > Configuration > Local Signaling Points page appears.

2. Click Insert.

   The SS7/Sigtran > Configuration > Local Signaling Points [Insert] page appears.

3. Populate the fields with data. For field definitions, see Local Signaling Points elements.

4. Perform one of these actions:
   - Click OK to save the data and exit this page.
   - Click Apply to save the data and remain on this page.
   - Click Cancel to return to the SS7/Sigtran > Configuration > Local Signaling Points page without saving any changes.

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

- Any fields contain a value that is out of the allowed range
- Any required field is empty (not entered)
- Adding a Server Group would cause the maximum number of Server Groups per LSP (1) to be exceeded
- The Local Signaling Point Name field value already exists
- A Server Group added to the list of Server Groups no longer exists (has been deleted)
- A Server Group added to the list of Server Groups does not have at least one Server assigned to it
- The MTP True Point Code was already assigned to another LSP (by another user)
- The MTP Capability Point Code already exists as an MTP Capability Point Code for this LSP
- The MTP Capability Point Code already exists as an MTP True Point Code
- Any of the MTP Capability Point Code check boxes is checked, but the corresponding MTP Capability Point Code value was not entered
- Adding this Local Signaling Point would cause the maximum number of Local Signaling Points per site (10) to be exceeded
Editing a Local Signaling Point

Use this procedure to edit an LSP.

The Edit operation lets you add or remove the MTP Capability Point Code and the assigned Server Group from an LSP configuration, if the LSP is not referenced by a Link Set.

1. Select SS7/Sigtran > Configuration > Local Signaling Points.
   The SS7/Sigtran > Configuration > Local Signaling Points page appears.

2. Select the Local Signaling Point from the list, then click Edit.
   The SS7/Sigtran > Configuration > Local Signaling Points [Edit] page appears.

3. To delete an MTP Capability Point Code from the LSP, uncheck the checkbox.
   A Capability Point Code cannot be removed from an LSP that is referenced by a Link Set. If necessary, perform Deleting a Link Set to remove the reference.

4. To add an MTP Capability Point Code, check the checkbox and then enter the MTP Capability Point Code as described in Local Signaling Points elements.

5. To add a Server Group, click the name in the Unassigned Server Group list and click the (>>) arrows to add the Server Groups to the Server Groups included in this Local Signaling Point field. You can select more than one by holding down ctrl while clicking a name then click the (>>) arrows to add the Server Groups to the Server Groups included in this Local Signaling Point field. Use Shift-click to select a range.

6. To remove a Server Group, click the name in the Server Groups included in this Local Signaling Point list and the (<<) arrows. You can select more than one by holding down Ctrl while clicking a name then click the (<<) arrows.
   A Server Group cannot be removed from an LSP that is referenced by a Link Set. If appropriate, perform Deleting a Link Set.

7. Perform one of these actions:
   • Click OK to save the data and exit this page.
   • Click Apply to save the data and remain on this page.

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

• Any fields contain a value that is out of the allowed range
• Any required field is empty (not entered)
• Adding a Server Group would cause the maximum number of Server Groups per LSP (1) to be exceeded
• The Local Signaling Point Name field value already exists
• A Server Group added to the list of Server Groups no longer exists (has been deleted)
• A Server Group added to the list of Server Groups does not have at least one Server assigned to it
• The MTP True Point Code was already assigned to another LSP (by another user)
• The MTP Capability Point Code already exists as an MTP True Point Code
• The MTP Capability Point Code already exists as an MTP Capability Point Code for this LSP
• Any of the MTP Capability Point Code check boxes is checked, but the corresponding MTP Capability Point Code value was not entered
• Adding this Local Signaling Point would cause the maximum number of Local Signaling Points per site (10) to be exceeded
Deleting a Local Signaling Point

Deleting an LSP removes the LSP from the SS7 network configuration.

An LSP cannot be deleted that is referenced by a Link Set. If appropriate, perform Deleting a Link Set.

An LSP cannot be deleted that is referenced by a Local SCCP User. If appropriate, perform Deleting a Local SCCP User.

1. Select SS7/Sigtran > Configuration > Local Signaling Points
   
The SS7/Sigtran > Configuration > Local Signaling Points page appears.

2. Select the Local Signaling Point from the list, then click Delete to remove the LSP.
   
   A delete confirmation message appears.

3. Click OK to confirm the deletion.

Generating a Report on Local Signaling Points

1. Select SS7/Sigtran > Configuration > Local Signaling Points
   
The SS7/Sigtran > Configuration > Local Signaling Points page appears.

2. Select the Local Signaling Point to generate a report.

3. Click the Report button.
   
   The report opens in its own browser window. At the bottom of the window, are the Print, Save or go Back buttons.

Local SCCP Users

An Local SCCP Users (LSU) is an application configured with a subsystem number to handle Rt-on-SSN traffic for a local signaling point code hosted on an MP Server.

Adding, deleting, or changing the status of an LSU affects the routing to configured Local SCCP Users. Signaling Connection Control Part (SCCP) is notified when an operator creates a local subsystem via the GUI and assigns a Local SCCP User to the local subsystem. This assignment entry is added to SCCP’s internal database with a default status of Disabled. The assignment enables SCCP to track the status of locally configured LSUs for messages that are routed on the SSN.

The SS7/Sigtran > Configuration > Local SCCP Users GUI page contains a row for each SS7 application hosted by SS7-MP Servers. The fields in each row indicate which SSN is associated with an application.

On the SS7/Sigtran > Configuration > Local SCCP Users page, you can perform the following actions:

• The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators ( =, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.

• Sort the list entries in ascending or descending order by Signaling Network Element Name, SSN, LSP SS7 Domain, LSP Point Code, or Application Name, by clicking the column heading.

• Click the Insert button.
The SS7/Sigtran > Configuration > Local SCCP Users [Insert] page opens. You can add a new Local SCCP User and its values. See Inserting a Local SCCP User.

If the maximum number of Local SCCP Users already exists in the system, the SS7/Sigtran > Configuration > Local SCCP Users [Insert] page will display an error message.

- Select the Local SCCP User from the list, then click the Delete button to remove the selected Local SCCP User. See Deleting a Local SCCP User.
- Select the Local SCCP User from the list, then click the Status button to view the status of the configured Local SCCP Users on the SS7/Sigtran > Maintenance > Local SCCP Users page. See Status of a Local SCCP User.
- Select the Local SCCP Users from the list, then click the Report button to generate a report of the configured Local SCCP User. See Generating a Report on Local SCCP Users.

Local SCCP Users elements

Table 11: Local SCCP Users Elements describes the information on the SS7/Sigtran > Configuration > Local SCCP Users pages: Data Input Notes apply only on the Insert page.

Table 11: Local SCCP Users Elements

<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Signaling Network Element Name</td>
<td>Identifies the Signaling Network Element Name to which the Local SCCP User is being added.</td>
<td>View-only</td>
</tr>
<tr>
<td>SSN</td>
<td>The specific subsystem number served by this Local SCCP User. This field is used to route incoming messages to the application hosting this SSN.</td>
<td>Format: Numeric Range: 2 - 254</td>
</tr>
<tr>
<td>*SS7 Domain</td>
<td>The SS7 domain of the selected Local Signaling Point.</td>
<td>Format: Drop-down list Range: ANSI, ITUI - ITU International, ITUN - ITU National, and ITUN24 - ITU National 24-bit Note: MD-IWF does not support ITUN24 - ITU National 24-bit point codes.</td>
</tr>
<tr>
<td>*Local Point Code</td>
<td>The point code of the Local Signaling Point associated with this Local SCCP User. Local signaling points are defined at SS7/Sigtran &gt; Configuration &gt; Local Signaling Points (see Local Signaling Points).</td>
<td>Format: Drop-down list of all configured LSPs associated with the selected Signaling Network Element Name. Range: 1 entry</td>
</tr>
<tr>
<td>*Application Name</td>
<td>Application Name to configure as the Local SCCP User.</td>
<td>Format: Drop-down list of all configured applications.</td>
</tr>
</tbody>
</table>
Viewing Local SCCP Users

Use this procedure to view the configured LSUs.

Select SS7/Sigtran > Configuration > Local SCCP Users.

The S7/Sigtran > Configuration > Local SCCP Users page appears with the configured LSUs listed.

For field definitions, see Local SCCP Users elements.

Inserting a Local SCCP User

Use this procedure to insert an LSU.

An LSU cannot be added if an identical LSU already exists with an SSN corresponding to the same LSP (point code and domain).

1. Select SS7/Sigtran > Configuration > Local SCCP Users

   The SS7/Sigtran > Configuration > Local SCCP Users page appears.

2. Click Insert.

   The SS7/Sigtran > Configuration > Local SCCP Users [Insert] page appears.

3. Populate the fields with data. For field definitions, see Local SCCP Users elements.

4. Perform one of these actions:
   • Click OK to save the data and exit this page.
   • Click Apply to save the data and remain on this page.
   • Click Cancel to return to the SS7/Sigtran > Configuration > Local SCCP Users page without saving any changes.

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

• The SSN field contains a value that is a wrong data type or is out of the allowed range
• Any required field is empty (not entered)
• An Identical LSU already exists for same SSN corresponding to same LSP (Point code and domain)
• The LSP no longer exists (has been deleted)
• Adding this Local SCCP User would cause the maximum number of LSPs per LSU (250) to be exceeded
The LSU is added to the configuration. By default, the LSU is in the Disabled state. To enable the LSU, see *Enabling a Local SCCP User*.

### Deleting a Local SCCP User

Deleting an LSU removes the LSU from the SS7 network configuration.

**Caution:** Deletion of an LSU that is in the Enabled state may result in the loss of signaling data. To disable an LSU, see *Disabling a Local SCCP User*.

1. Select **SS7/Sigtran > Configuration > Local SCCP Users**.
   
   The **SS7/Sigtran > Configuration > Local SCCP Users** page appears.

2. Select the Local SCCP User, then click **Delete**.
   
   A delete confirmation message appears.

3. Perform one of the following actions
   
   • Click **OK** to confirm the deletion.
     
     If the LSU is **Enabled**, an additional confirmation message appears.
     
     Continue with **Step 4**.

   • Click **Cancel** to return to the **SS7/Sigtran > Configuration > Local SCCP Users** page without deleting the LSU.

4. Perform one of the following actions if the LSU is in the **Enabled** state:
   
   • If the confirmation message says that the LSU state reported by the MP Server is not Disabled, click **Cancel** to close the confirmation message and then disable the LSU.

   • If the confirmation message says that the MP Server cannot determine the LSU state, click **Cancel** to close the confirmation message, and look on **Status & Manage > Servers** GUI page to investigate.

   • On either confirmation message, click **OK** to force the deletion of the LSU.

   **Caution:** Deletion of an LSU that is **Enabled** may result in the loss of signaling data. See *Disabling a Local SCCP User* to disable the LSU.

### Status of a Local SCCP User

Use this procedure to view Status of the configured LSU.

1. Select **SS7/Sigtran > Configuration > Local SCCP Users**.
   
   The **SS7/Sigtran > Configuration > Local SCCP Users** page appears.

2. Select the **Local SCCP User** to check the status.

3. Click **Status**.
Generating a Report on Local SCCP Users

1. Select SS7/Sigtran > Configuration > Local SCCP Users.
The SS7/Sigtran > Configuration > Local SCCP Users page appears.
2. Select the Local SCCP User to generate a report.
3. Click the Report button.
The report opens in its own browser window. At the bottom of the window, are the Print, Save or go Back buttons.

Remote Signaling Points

A Remote Signaling Point (RSP) represents an SS7 network node (point code) that signaling must be sent to, from an SS7-MP. An RSP has an SS7 domain (ANSI, ITU-I, ITU-N, and ITU-N 24-bit Point Code) point code, and an optional Adjacent Server Group.

Note: MD-IWF does not support ITUN24 - ITU National 24-bit point codes.

An Adjacent Server Group is configured if the Remote Signaling Point is an Adjacent Remote Signaling Point. An STP to which an SS7-MP is connected via an Association is an adjacent RSP.

The list on the SS7/Sigtran > Configuration > Remote Signaling Points page must contain a row for every point code that is directly connected to the SS7 application and any remote destination that the SS7 application originates messages toward.

On the SS7/Sigtran > Configuration > Remote Signaling Points page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list of field names. The next drop-down (right) lists all of matching operators (=, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector that allows the user to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.
- Sort the list entries in ascending or descending order by SS7 Domain, MTP Point Code, Remote Signaling Point Name or Adjacent Server Group, by clicking the column heading.
- Click the Insert button.


If the maximum number of Remote Signaling Points already exists in the system, the SS7/Sigtran > Configuration -> Remote Signaling Points [Insert] page will display an error message.

- Select a Remote Signaling Point from the list, then click the Delete button to remove the selected Remote Signaling Point. See Deleting a Remote Signaling Point.
- Select the Remote Signaling Point from the list, then click the Status button to view the status of the configured Remote Signaling Point on the SS7/Sigtran > Maintenance > Remote Signaling Points page. See Status of a Remote Signaling Point.
Remote Signaling Point elements

Table 12: Remote Signaling Points Elements describes the information on the SS7/Sigtran > Configuration > Remote Signaling Points pages: Data Input Notes apply only to the [Insert] page.

<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| *SS7 Domain                         | The SS7 domain in which the RSP resides. | Format: Drop-down list  
*Note: MD-IWF does not support ITUN24 - ITU National 24-bit point codes. |
| MTP Point Code                      | The unique MTP point code that identifies this RSP. Only one RSP can have this MTP point code. | Text field requires point code format (see Point code formats). |
| Remote Signaling Point Name         | An optional name that uniquely identifies the Remote Signaling Point. RSP names are case sensitive.  
If this field displays dashes, it indicates that a name has not been configured for this RSP. | Format: Text box; valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.  
Range: A 32-character string. |
| Adjacent Server Group               | The Adjacent Server Group associated with this RSP.  
Populate this field if this RSP represents an Adjacent Server. An Adjacent Server Group can be referenced by more than one RSP. An RSP, however, can reference one and only one Adjacent Server Group. | Format: Drop-down list  
Range: All configured Adjacent Server Groups.  
Default: None (this RSP will not be used to signal to an Adjacent Server). |

Viewing Remote Signaling Points

Use this procedure to view the configured RSPs.

Select SS7/Sigtran > Configuration > Remote Signaling Points.

The SS7/Sigtran > Configuration > Remote Signaling Points page appears, listing all of the configured RSPs.
Inserting a Remote Signaling Point

Use this task to add a Remote Signaling Point.

   The SS7/Sigtran > Configuration > Remote Signaling Points page appears.

2. Click Insert.
   The SS7/Sigtran > Configuration > Remote Signaling Points [Insert] page appears.

3. Populate the fields with data. For field definitions, see Remote Signaling Point elements.

4. Perform one of these actions:
   • Click OK to save the data and exit this page.
   • Click Apply to save the data and remain on this page.
   • Click Cancel to return to the SS7/Sigtran > Configuration > Remote Signaling Points page without saving any changes.

   If OK or Apply is clicked and any of the following conditions exists, an error message appears:
   • Any fields contain a value that is out of the allowed range
   • Any required field is empty (not entered)
   • The Remote Signaling Point Name field value already exists
   • Adding a Server Group would cause the maximum number of Server Groups per RSP (1) to be exceeded
   • A selected Adjacent Server Group no longer exists (has been deleted)
   • The MTP Point Code was already assigned to another RSP (by another user)
   • Adding this Remote Signaling Point would cause the maximum number of Remote Signaling Points per site (512) to be exceeded

Deleting a Remote Signaling Point

Deleting an RSP removes the RSP from the SS7 network configuration.

An RSP cannot be deleted that is referenced by a Remote MTP3 User, a Link Set, or a Route. If necessary, perform Deleting a Remote MTP3 User, Deleting a Link Set, or Deleting a Route prior to attempting this procedure.

   The SS7/Sigtran > Configuration > Remote Signaling Points page appears.

2. Select the Remote Signaling Point, then click Delete.
   A delete confirmation message appears.

3. Click OK to confirm the deletion.
Status of a Remote Signaling Point

Use this procedure to view Status of the configured RSP.

   The SS7/Sigtran > Configuration > Remote Signaling Points page appears.

2. Select the Remote Signaling Point to check the status.

3. Click Status.
   The SS7/Sigtran > Maintenance > Remote Signaling Points page appears. See Resetting the subsystem and point code status and Resetting the Network Status of the Routes for the procedures.

Generating a Report on Remote Signaling Points

Use this task to generate a report on one or all Remote Signaling Points.

   The SS7/Sigtran > Configuration > Remote Signaling Points page appears.

2. Select the Remote Signaling Point to generate a report.

3. Click the Report button.
   The report opens in its own browser window. At the bottom of the window, are the Print, Save or go Back buttons.

Remote MTP3 Users

An Remote MTP3 User (RMU) represents a remote SCCP subsystem to which the Signaling Network Interface forwards signaling. When a message is forwarded from an Mobile Switching Center (MSC) to an SS7-MP node, an RMU must be configured for the subsystem on the SS7-MP node.

There are two configuration scenarios for remote subsystems to which only service messages will be sent. A service message is a failure indication such as UDTS and XUDTS.

- If an MP must route signaling for UDT, XUDT, UDTS, or XUDTS to an RMU (such as a remote SCCP peer), then an RMU must be configured for that remote SCCP subsystem.
- For a remote SCCP Management (SCMG) subsystem, it is not necessary or possible to create an RMU. SCCP Management uses subsystem 1 instead. Subsystem 1 is automatically created at the time the message is forwarded.

If an RMU exists, the subsystem status is tracked and used for routing SS7 messages (including service messages).

STPs generally do not have subsystems and therefore do not need RMUs. An exception would be an application such as LNP (Local Number Portability) that can be hosted on an STP.

The SS7/Sigtran > Configuration > Remote MTP3 Users GUI page displays an entry for each MTP3 user to which SS7 SCCP signaling is sent, or for which status tracking is desired. The fields are used to populate the Called Party Address parameters.
On the SS7/Sigtran > Configuration > Remote MTP3 Users page, you can perform the following actions:

- The **Filter** allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (eq, neq, gt, gte, lt, lte, Like and Is Null). The text box is the value selector used to enter the matching value. Click the **GO** button to enable the filter. The **RESET** button will reset the filter.
- Sort the list entries in ascending or descending order by SS7 Domain, Remote Point Code, Remote SSN, or Remote MTP3 User Name, by clicking the column heading.
- Click the **Insert** button.


If the maximum number of Remote MTP3 Users already exists in the system, the SS7/Sigtran > Configuration > Remote MTP3 Users [Insert] page will display an error message.

- Select the Remote MTP3 User from the list, then click the **Delete** button to remove the selected Remote MTP3 User. See *Deleting a Remote MTP3 User*.
- Select the Remote MTP3 User from the list, then click the **Status** button to view the status of the configured Remote MTP3 Users on the SS7/Sigtran > Maintenance > Remote MTP3 Users page. See *Status of a Remote MTP3 User*.

### Remote MTP3 Users elements

*Table 13: Remote MTP3 Users Elements* describes the information on the SS7/Sigtran > Configuration > Remote MTP3 Users pages. Data Input Notes apply only to the Insert page.

**Table 13: Remote MTP3 Users Elements**

<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Remote SSN</td>
<td>The specific subsystem number to track the status of the RMU. The combination of Point Code and SSN must be unique.</td>
<td>Format: Text box; numeric. Range: 2-254</td>
</tr>
</tbody>
</table>
### Remote MTP3 User Name

An optional name that uniquely identifies the RMU. An RMU must be created for each MTP3 user whose status should be tracked by SCCP. The RMU name is case-sensitive. Range: A 32-character string.

**Data Input Notes:**
- Format: Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.

### Viewing Remote MTP3 Users

Use this task to view configured Remote MTP3 Users.

Select **SS7/Sigtran > Configuration > Remote MTP3 Users**.

The **SS7/Sigtran > Configuration > Remote MTP3 Users** page appears with the configured RMUs listed.

For field definitions, see *Remote MTP3 Users elements*.

### Inserting a Remote MTP3 User

Use this task to add a Remote MTP3 User.

1. Select **SS7/Sigtran > Configuration > Remote MTP3 Users**.
   
   The **SS7/Sigtran > Configuration > Remote MTP3 Users** page appears.

2. Click **Insert**.

   The **SS7/Sigtran > Configuration > Remote MTP3 Users [Insert]** page appears.

3. Populate the fields with data. For field definitions, see *Remote MTP3 Users elements*.

4. Perform one of these actions:
   - Click **OK** to save the data and exit this page.
   - Click **Apply** to save the data and remain on this page.
   - Click **Cancel** to return to the **SS7/Sigtran > Configuration > Remote MTP3 Users** page without saving any changes.

   If **OK** or **Apply** is clicked and any of the following conditions exists, an error message appears:
   - Any fields contain a value that is wrong data type or out of the allowed range
   - Any required field is empty (not entered)
   - The **Remote MTP3 User Name** field value already exists
   - An **Remote MTP3 User** already exists with the same RSP and Remote SSN values
   - A selected **Remote Point Code** no longer exists (has been deleted)
   - Adding this **Remote MTP3 User** would cause the maximum number of Remote MTP3 Users per site (512) to be exceeded
Deleting a Remote MTP3 User

Use this task to delete a Remote MTP3 User.

   The SS7/Sigtran > Configuration > Remote MTP3 Users page appears.
2. Select the Remote MTP3 User, then click Delete.
   A delete confirmation message appears.
3. Click OK to confirm the deletion.

Status of a Remote MTP3 User

Use this procedure to view Status of the configured Remote MTP3 User.

   The SS7/Sigtran > Configuration > Remote MTP3 Users page appears.
2. Select the Remote MTP3 User to check the status.
3. Click Status.
   The SS7/Sigtran > Maintenance > Remote MTP3 Users page appears. See Resetting the subsystem and point code status and Resetting the Network Status of the Routes for the procedures.

Link Sets

A Link Set represents a logical signaling connection from one Local Point Code (LSP) to one adjacent Remote Point Code of the Adjacent Remote Signaling Point (RSP).

Each site can be configured with up to 96 Link Sets. A Link Set may be assigned up to 16 links.

A Link Set can span Associations. For example, an STP point code can be distributed across multiple Servers. A Link Set cannot span MP Servers because each MP Server has its own point code.

A Link Set is typically configured for each combination of LSPs and adjacent RSPs with these parameters specified:
- The point code (the True Point Code or Capability Point Code) from the LSP that this Link Set serves
- The adjacent RSP
- (Optional) the Routing Context

The SS7/Sigtran > Configuration > Link Sets page lists Link Sets for each combination of Local Signaling Point and Adjacent Remote Signaling Point.

On the SS7/Sigtran > Configuration > Link Sets page, you can perform the following actions:
- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching
operators (\(=, \neq, >, \geq, <, \leq\), Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.

- Sort the list entries in ascending or descending order by Signaling Network Element Name, Link Set Name, Mode, Local Signaling Point, SS7 Domain, LSP Point Code, Adjacent Remote Point Code or Routing Context, by clicking the column heading.

- Click the **Insert** button.

The SS7/Sigtran > Configuration > Link Sets [Insert] page opens. You can add a new Link Set and its values. See Inserting a Link Set.

If the maximum number of Link Sets already exists in the system, the SS7/Sigtran > Configuration -> Link Sets [Insert] page will display an error message.

- Select the Link Set from the list, then click the **Delete** button to remove the selected Link Set. See Deleting a Link Set.

- Select the Link Set from the list, then click the **Status** button to view the status of the configured Link Set on the SS7/Sigtran > Maintenance > Link Sets page. See Status of a Link Set.

- Select the Link Set from the list, then click the **Report** button to generate a report of the configured Link Set. See Generating a Report on Link Sets.

### Link Sets elements

*Table 14: Link Sets Elements* describes information on the SS7/Sigtran > Configuration > Link Sets pages. Data Input Notes apply only to the Insert page.

**Table 14: Link Sets Elements**

<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Signaling Network Element Name</td>
<td>Identifies the Signaling Network Element to which the Link Set is being added.</td>
<td>View-only</td>
</tr>
<tr>
<td>*Link Set Name</td>
<td>A name that uniquely identifies this Link Set. The Link Set name is case-sensitive.</td>
<td>Format: Text box; valid characters are alphanumeric and underscore (_). Must contain at least one alpha and must not start with a digit. Range: A 32-character string</td>
</tr>
<tr>
<td>*Mode</td>
<td>Defines the desired relationship between the local and remote peer for this Link Set. The mode specifies whether the Message Processor implements client or server procedures for session management. One mode is supported: <strong>AS (Application Server) to SG (Signaling Gateway)</strong>. The local side is the client; the remote side is the server.</td>
<td>Format: Drop-down list Range: Select <strong>AS-&gt;SG</strong> if the local side of the connection is an Application Server and the remote side is a Signaling Gateway Default: <strong>AS-&gt;AG</strong></td>
</tr>
<tr>
<td>Element (* indicates required field)</td>
<td>Description</td>
<td>Data Input Notes</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>has LMU and LSP; the remote side has RSP and optionally RMU.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Local Signaling Point</td>
<td>Specifies the LSP served by this Link Set. Each Local Signaling Point entry is a hyperlink to the Local Signaling Point table filtered by this LSP.</td>
<td>Format: Drop-down list Range: All configured LSPs</td>
</tr>
<tr>
<td>SS7 Domain</td>
<td>The SS7 domain of the selected Local Signaling Point.</td>
<td>Format: This is a display-only field populated when a Local Signaling Point is selected.</td>
</tr>
<tr>
<td>*LSP Point Code</td>
<td>The point code of the selected Local Signaling Point to be served by this Link Set. A selection of All means that the Link Set will accept signaling destined for the selected Local Signaling Point’s True Point Code or Capability Point Code, if one is assigned.</td>
<td>Format: Drop-down list Range: All Default: All</td>
</tr>
<tr>
<td>*Adjacent Remote Point Code</td>
<td>The point code of the Adjacent Remote Signaling Point representing the Adjacent Signaling Gateway to be served by this Link Set.</td>
<td>Format: Drop-down list Range: The list is based on the domain of the selected Local Signaling Point</td>
</tr>
<tr>
<td>Assign Routing Context (appears on Insert Link Set page only)</td>
<td>Indicates whether a Routing Context applies to this Link Set. A Routing Context must be specified if links from this Link Set will share an Association with links from at least one other Link Set.</td>
<td>Format: Drop-down list Range: Yes, No Select Yes if a Routing Context Applies. If you select No, the Routing Context field is cleared and disabled. Default: No</td>
</tr>
<tr>
<td>Routing Context</td>
<td>Message parameter used to uniquely identify the application context. This value is used only if Assign Routing Context is set to Yes. This Routing Context must be configured to match the Routing Context value configured for this Link Set at the Signaling Gateway.</td>
<td>Format: Text box; numeric Range: 32-bit unsigned Default: First unused integer value greater than zero</td>
</tr>
</tbody>
</table>
Viewing Link Sets

Use this task to view configured Link Sets.

Select SS7/Sigtran > Configuration > Link Sets.

The SS7/Sigtran > Configuration > Link Sets page appears with the configured Link Sets listed. For field definitions, see Link Sets elements.

Inserting a Link Set

Use this task to add a Link Set.

1. Select SS7/Sigtran > Configuration > Link Sets.

   The SS7/Sigtran > Configuration > Link Sets page appears.

2. Click Insert.

   The SS7/Sigtran > Configuration > Link Sets [Insert] page appears.

3. Populate the fields with data. For field definitions, see Link Sets elements.

4. Perform one of these actions:
   - Click OK to save the data and exit this page.
   - Click Apply to save the data and remain on this page.
   - Click Cancel to return to the SS7/Sigtran > Configuration > Link Sets page without saving any changes.

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

- Any enabled field has no value, or a drop-down list box has a value of -- Select --.
- Any enabled field contains a value that is a wrong data type or is out of the allowed range
- The Link Set Name already exists.
- The selected Local Signaling Point no longer exists (has been deleted).
- The selected Adjacent Remote Point Code no longer exists (has been deleted).
- A Link Set with the selected LSP and RSP already exists.
- Adding this Link Set would cause the maximum number of Link Sets per site (96) to be exceeded.

Deleting a Link Set

Use this task to delete a Link Set.

Deleting a Link Set removes the Link Set from the configuration.

A Link Set cannot be deleted that is referenced by a Link or a Route. If necessary, perform Deleting a Link or Deleting a Route before proceeding.

1. Select SS7/Sigtran > Configuration > Link Sets.

   The SS7/Sigtran > Configuration > Link Sets page appears.

2. Select the Link Set, then click Delete.
A delete confirmation message appears.

3. Click OK to confirm the deletion.

**Status of a Link Set**

Use this procedure to view Status of the configured Link Set.

1. Select SS7/Sigtran > Configuration > Link Sets.
   The SS7/Sigtran > Configuration > Link Sets page appears.

2. Select the Link Set to check the status.

3. Click Status.
   The SS7/Sigtran > Maintenance > Linksets page appears. This is a read only page.

**Generating a Report on Link Sets**

Use this task to generate a report for one or all Link Sets.

1. Select SS7/Sigtran > Configuration > Link Sets.
   The SS7/Sigtran > Configuration > Link Sets page appears.

2. Select the Link Set to generate a report.

3. Click the Report button.
   The report opens in its own browser window. At the bottom of the window, are the Print, Save or go Back buttons.

**Links**

A Link carries signaling within a Link Set using a specific Association. A Link can belong to only one Link Set and one Association.

If a Link fails, the Signaling Network Interface attempts to divert signaling traffic to another Link in the same Link Set.

The SS7/Sigtran > Configuration > Links page shows all configured M3UA links.

**Note:** Links cannot be edited. A link can be changed only by deleting it and adding the changed link.

On the SS7/Sigtran > Configuration > Links page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click GO to enable the filter. The RESET button will reset the filter.
- Sort the list entries in ascending or descending order by Signaling Network Element Name, Link Name, Link Set or Association, by clicking the column heading.
- Click Insert.
The SS7/Sigtran > Configuration > Links [Insert] page opens. You can add a new Link and its values. See Inserting a Link.

If the maximum number of Links already exists in the system, the SS7/Sigtran > Configuration > Links [Insert] page will display an error message.

- Select the Link from the list, and click Delete to remove the selected Link. See Deleting a Link.
- Select the Link from the list, and click Status to view the status of the configured Links on the SS7/Sigtran > Maintenance > Links page. See Status of a Link.
- Select the Link from the list, and click Report to generate a report of the configured Link. See Generating a Report on Links.

Links elements

Links elements describes the information on the SS7/Sigtran > Configuration > Links pages. Data Input Notes apply only to the Insert page.

Table 15: Links Elements

<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Signaling Network Element Name</td>
<td>Identifies the Signaling Network Element to which the Link is being added.</td>
<td>View-only</td>
</tr>
<tr>
<td>*Link Name</td>
<td>A name that uniquely identifies the Link. The name is case sensitive.</td>
<td>Format: Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit. Range: A 32-character string.</td>
</tr>
<tr>
<td>*Link Set</td>
<td>The Link Set to which the Link is being added. A Link Set supports up to 16 links. Each Link Set entry is a hyperlink to the Link Set table filtered by this Link Set.</td>
<td>Format: Drop-down list Range: All Link Sets associated with the selected Signaling Network Element.</td>
</tr>
<tr>
<td>*Association</td>
<td>The SCTP Association that will host the Link. If the Link shares an Association with Links from other Link Sets, each Link Set using the Association must be configured with a unique routing context. Only one Link can be created for a given Link Set and Association.</td>
<td>Format: Drop-down list Range: All Associations configured as Transports under Transport Manager &gt; Configuration &gt; Transports.</td>
</tr>
</tbody>
</table>

Viewing Links

Use this procedure to view the configured links.
Select SS7/Sigtran > Configuration > Links.

The SS7/Sigtran > Configuration > Links page appears with the configured links listed.

For field definitions, see Links elements.

Inserting a Link

Use this task to add a Link.

A Link cannot be inserted if any of the following is true:

- The Local MP Server that hosts the selected Association does not exist in the Server Group that hosts the Local Signaling Point associated with the selected Link Set.
- A Link already exists with the same combination of Link Set and Association.
- The selected Association already hosts at least one Link from another Link Set that has the same Routing Context as the Routing Context in the selected Link Set.
- The Adjacent Server that hosts the selected Association does not exist in the Adjacent Server Group that represents the Remote Signaling Point associated with the selected Link Set.
- The selected Association already hosts at least one Link from another Link Set but at least one of the Link Sets has no Routing Context configured.

1. Select SS7/Sigtran > Configuration > Links.
   The SS7/Sigtran > Configuration > Links page appears.

2. Click Insert.
   The SS7/Sigtran > Configuration > Links [Insert] page appears.

3. Populate the fields with data. For field definitions, see Links elements.

4. Perform one of these actions:
   - Click OK to save the data and exit this page.
   - Click Apply to save the data and remain on this page.
   - Click Cancel to return to the SS7/Sigtran > Configuration > Links page without saving any changes.

The Link is added and is placed in the Disabled Administrative State. See Link Maintenance to view the Administrative State of the link. To enable the link, see Enabling a Link.

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

- A drop-down list has a value of -- Select -- or a required field value is missing (not entered).
- Any fields contain a value that is out of the allowed range.
- The Link Name field value already exists.
- Adding this Link would cause the maximum number of Links per site (1024) to be exceeded.
- Adding this Link would cause the maximum number of Links per Link Set (16) to be exceeded.
- Adding this Link would cause the maximum number of Links per Association (8) to be exceeded.
- The selected Link Set no longer exists (has been deleted).
- The selected Association no longer exists (has been deleted).
- The Local MP Server referenced by the selected Association does not exist in the Server Group hosting the LSP associated with the selected Link Set.
- The Adjacent Server referenced by the selected Association does not exist in the Adjacent Server Group referenced by the RSP associated with the selected Link Set.
- The selected **Association** already hosts at least one Link from another Link Set that has the same Routing Context as the Routing Context in the selected Link Set.
- The selected **Association** already hosts at least one Link from another Link Set and at least one of the Link Sets has no Routing Context configured.

**Deleting a Link**

Deleting a Link removes the Link from the database.
A Link cannot be deleted if it is in-service. To disable the Link, (see *Disabling a Link*).

1. Select **SS7/Sigtran > Configuration > Links**.
   The **SS7/Sigtran > Configuration > Links** page appears.
2. Select the Link, then click **Delete**.
   A delete confirmation message appears.
3. Click **OK** to confirm the deletion.

**Status of a Link**

Use this procedure to view Status of the configured Link.

1. Select **SS7/Sigtran > Configuration > Links**.
   The **SS7/Sigtran > Configuration > Links** page appears.
2. Select the **Link** to check the status.
3. Click **Status**.
   The **SS7/Sigtran > Maintenance > Links** page appears. See *Enabling a Link* and *Disabling a Link* for the procedures.

**Generating a Report on Links**

Use this task to generate a report for one or all links.

1. Select **SS7/Sigtran > Configuration > Links**.
   The **SS7/Sigtran > Configuration > Links** page appears.
2. Select the **Link** to generate a report.
3. Click the **Report** button.
   The report opens in its own browser window. At the bottom of the window, are the **Print, Save** or go **Back** buttons.
Routes

A Route represents a signaling path from a Local Point Code (LSP) to a Remote Signaling Point (RSP) code using a given Link Set. Routes are needed for adjacent RSPs to route network management signaling. A Route consists of an RSP, a Link Set, and a relative cost.

There can be up to two routes between a local point code and a remote point code.

Each Route has a cost. The Signaling Network Interface attempts to route signaling over the lower cost Route. If two Routes have the same cost, signaling is load-shared across both Routes.

The Signaling Network Interface supports 1024 routes per site.

The SS7/Sigtran > Configuration > Routes page shows all configured Routes. Each Remote Signaling Point can have a maximum of two Routes.

On the SS7/Sigtran > Configuration > Routes page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.
- Sort the list entries in ascending or descending order by Signaling Network Element Name, SS7 Domain, Remote Point Code, Link Set, Adjacent Point Code, Relative Cost, or Route Name, by clicking the column heading.
- Click the Insert button.

The SS7/Sigtran > Configuration > Routes [Insert] page opens. You can add a new Route and its values. See Inserting a Route.

If the maximum number of Routes already exists in the system, the SS7/Sigtran > Configuration > Routes [Insert] page will display an error message.

- Select the Route from the list, then click the Edit button.

The SS7/Sigtran > Configuration > Routes [Edit] page opens. You can edit the selected Routes. See Editing a Route.

- Select the Route from the list, then click the Delete button to remove the selected Route. See Deleting a Route.

- Select the Route from the list, then click the Status button to view the status of the configured Route on the SS7/Sigtran > Maintenance > Routes page. See Status of a Route.

- Select the Route from the list, then click the Report button to generate a report the configured Route. See Generating a Report on Routes.

Routes elements

Table 16: Routes Elements describes the information on the SS7/Sigtran > Configuration > Routes pages. Data Input Notes apply only to the Insert and Edit pages.
Table 16: Routes Elements

<table>
<thead>
<tr>
<th>Element (* indicates required field)</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Signaling Network Element Name</td>
<td>Identifies the Signaling Network Element to which the route is being added.</td>
<td>View-only</td>
</tr>
<tr>
<td>*SS7 Domain</td>
<td>The SS7 domain of the selected Remote Signaling Point.</td>
<td>Format: Drop-down list&lt;br&gt;Range: ANSI, ITUI - ITU International, ITUN - ITU National, ITU National 24-bit&lt;br&gt;Note: MD-IWF does not support ITUN24 - ITU National 24-bit point codes</td>
</tr>
<tr>
<td>Remote Point Code</td>
<td>The point code configured in the remote signaling point that identifies the destination of this route.</td>
<td>Format: Drop-down list&lt;br&gt;Range: Configured Remote Signaling Points associated with the selected SS7 Domain</td>
</tr>
<tr>
<td>*Link Set</td>
<td>The Link Set to be used by this route. The choice of Link Set implies the LSP of the Route.</td>
<td>Format: Drop-down list&lt;br&gt;Range: Configured Link Sets from the selected Remote Point Code domain</td>
</tr>
<tr>
<td>Adjacent Point Code</td>
<td>The point code configured in the Adjacent RSP being used by the selected Link Set.</td>
<td>This field is view-only. The field is populated automatically when a Link Set is selected.</td>
</tr>
<tr>
<td>Relative Cost</td>
<td>The relative cost assigned to this route. Lower cost routes are preferred over higher cost routes.</td>
<td>Format: Text box; numeric&lt;br&gt;Default: 20&lt;br&gt;Range: 0 - 99</td>
</tr>
<tr>
<td>Route Name</td>
<td>An optional name that uniquely identifies the route. The name is case sensitive.</td>
<td>Format: Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.&lt;br&gt;Range: A 32-character string</td>
</tr>
</tbody>
</table>

Viewing Routes

Use this procedure to view the configured Routes.

Select SS7/Sigtran > Configuration > Routes.

The SS7/Sigtran > Configuration > Routes page appears with the configured Routes listed. For field definitions, see Routes elements.
Inserting a Route

Use this task to add a Route.

A Route cannot be inserted if any of the following is true:

- A Route already exists with the selected Remote Signaling Point and Link Set.
- The SS7 domain of the selected Remote Signaling Point does not match the SS7 domain of the Local Signaling Point configured for the selected Link Set.

1. Select SS7/Sigtran > Configuration > Routes.

The SS7/Sigtran > Configuration > Routes page appears.

2. Click Insert.

The SS7/Sigtran > Configuration > Routes [Insert] page appears.

3. Populate the fields with data. For field definitions, see Routes elements.

4. Perform one of these actions:
   - Click OK to save the data and exit this page.
   - Click Apply to save the data and remain on this page.
   - Click Cancel to return to the SS7/Sigtran > Configuration > Routes page without saving any changes.

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

- Any fields contain a value that is wrong data type or out of the allowed range
- Any required field is empty (not entered)
- The Route Name field value already exists
- The selected Remote Point Code no longer exists (has been deleted)
- The selected Link Set no longer exists (has been deleted)
- The selected Remote Signaling Point (Remote Point Code) and Link Set already exist for an existing Route
- Adding this Route would cause the maximum number of Routes per site (1024) to be exceeded
- The maximum number of Routes per RSP per MP Server (2) have already been created for the selected RSP and MP Server

Editing a Route

The Edit operation lets you change the Relative Cost associated with a Route. All other fields on the page are read-only.

1. Select SS7/Sigtran > Configuration > Routes.

The SS7/Sigtran > Configuration > Routes page appears.

2. Select the Route, then click Edit.

The SS7/Sigtran > Configuration > Routes [Edit] page appears. For field definitions, see Routes elements.

3. Change the value in the Relative Cost field.
4. Perform one of these actions:
   - Click **OK** to save the data and exit this page.
   - Click **Apply** to save the data and remain on this page.
   - Click **Cancel** to return to the **SS7/Sigtran > Configuration > Routes** page without saving any changes.

The relative cost associated with the Route is updated. Changes to the RMU take effect in the next outgoing message after the **OK** button is clicked.

### Deleting a Route
Deleting a Route removes the Route from the database.

1. Select **SS7/Sigtran > Configuration > Routes**.
   
   The **SS7/Sigtran > Configuration > Routes** page appears.

2. Select the Route, then click **Delete**.
   
   A delete confirmation message appears.

3. Click **OK** to confirm the deletion.

### Status of a Route
Use this procedure to view Status of the configured Route.

1. Select **SS7/Sigtran > Configuration > Routes**.
   
   The **SS7/Sigtran > Configuration > Routes** page appears.

2. Select the **Route** to check the status.

3. Click **Status**.
   
   The **SS7/Sigtran > Maintenance > Remote Signaling Points** page appears. See *Resetting the subsystem and point code status* and *Resetting the Network Status of the Routes* for the procedures.

### Generating a Report on Routes
Use this task to generate a report on one or all Routes.

1. Select **SS7/Sigtran > Configuration > Routes**.
   
   The **SS7/Sigtran > Configuration > Routes** page appears.

2. Select the **Route** to generate a report.

3. Click the **Report** button.
   
   The report opens in its own browser window. At the bottom of the window, are the **Print**, **Save** or go **Back** buttons.
SCCP Options

The SCCP Options page shows all of the configured SCCP options.

SCCP Options elements

*Table 17: SCCP Options Elements* describes the information on the SS7/Sigtran > Configuration > SCCP Options page.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsystem Test Interval</td>
<td>The number of seconds to delay after sending an SST (Subsystem Test) before sending the next SST.</td>
<td>Format: Numeric&lt;br&gt;Range: 1 - 600&lt;br&gt;Default: 30</td>
</tr>
<tr>
<td>ANSI Default GTT Point Code</td>
<td>Default ANSI Global Title STP point code in format NNN-NNN-NNN. If the egress SCCP message request does not contain a destination point code and the CdPA routing indicator indicates global title translation is required, then this point code will be used as the DPC of the egress message.</td>
<td>Format: Drop-down list&lt;br&gt;Range: Point Code must comply with ANSI T1.111.8</td>
</tr>
<tr>
<td>ITUI Default GTT Point Code</td>
<td>Default ITUI Global Title STP point code in format J-NNN-J. If the egress SCCP message request does not contain a destination point code and the CdPA routing indicator indicates global title translation is required, then this point code will be used as the DPC of the egress message.</td>
<td>Drop-down&lt;br&gt;Range: 0-7 (J), 0-255 (NNN)</td>
</tr>
<tr>
<td>ITUN Default GTT Point Code</td>
<td>Default ITUN Global Title STP point code in format NNNNNN. If the egress SCCP message request does not contain a destination point code and the CdPA routing indicator indicates global title translation is required, then this point code will be used as the DPC of the egress message.</td>
<td>Format: Drop-down list&lt;br&gt;Range: 0 - 16383 (NNNNN)</td>
</tr>
<tr>
<td>ITUN24 Default GTT Point Code</td>
<td><strong>Note:</strong> MD-IWF does not support ITUN24 - ITU National 24-bit point codes.</td>
<td>N/A</td>
</tr>
<tr>
<td>Reassembly Timeout(ITU)</td>
<td>Time period after receiving the first segment, while waiting to receive all the</td>
<td>Format: Text box&lt;br&gt;Range: 10-20 seconds</td>
</tr>
</tbody>
</table>
### Variable | Description | Data Input Notes
--- | --- | ---
null | remaining segments related to same ITU XUDT segmented message. | Default: 10

**Reassembly Timeout(ANSI)**
Time period after receiving the first segment, while waiting to receive all the remaining segments related to same ANSI XUDT segmented message.  
Format: Text box  
Range: 5-20 seconds  
Default: 5

**SCCP Address Length in Signaling Network**
Maximum SCCP Address Length in operator's network, considering any intermediate translations and network conversations.  
Format: Text box  
Range: 3-28 bytes  
Default: 19

**Route on GT Action**
Configuration option for enforcing the default translation handling in the SS7 application.  
Format: Drop-down list  
Range: Error Procedure, Forward To Application  
Default: Error Procedure

### Viewing SCCP Options
Use this procedure to view the SCCP Options.

Select **SS7/Sigtran > Configuration > SCCP Options**.  
The **SS7/Sigtran > Configuration > SCCP Options** page appears with the SCCP Options listed.  
For field definitions, see *SCCP Options elements*.

### Editing an SCCP Option
Use this procedure to edit the values of the variables on the **SS7/Sigtran > Configuration > SCCP Options** page.

1. Select **SS7/Sigtran > Configuration > SCCP Options**.  
The **SS7/Sigtran > Configuration > SCCP Options** page appears.

2. In the **Value** fields, make the desired changes. For field definitions, see *SCCP Options elements*.  
3. Click **Apply** to save the data.

### MTP3 Options
The **MTP3 Options** page shows the MTP3 timers and their current values. The page enables you to change the value association with a timer.
## MTP3 Options elements

*Table 18: MTP3 Options Elements* describes the information on the **SS7/Sigtran > Configuration > MTP3 Options** page:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timer T1</td>
<td>Changeover timer. This timer introduces a delay to help prevent message mis-sequencing on link changeover.</td>
<td>Format: Numeric&lt;br&gt;Range: 10 - 2000 msecs&lt;br&gt;Default: 60 msecs</td>
</tr>
<tr>
<td>Timer T3</td>
<td>Change-back timer. This timer introduces a delay to help prevent message mis-sequencing on link change-back.</td>
<td>Format: Numeric&lt;br&gt;Range: 10 - 2000 msecs&lt;br&gt;Default: 60 msecs</td>
</tr>
<tr>
<td>Timer T6</td>
<td>Controlled Rerouting timer. This timer introduces a delay to help prevent message mis-sequencing on controlled rerouting.</td>
<td>Format: Numeric Range: 10 - 2000 msecs&lt;br&gt;Default: 60 msecs</td>
</tr>
<tr>
<td>Timer T10</td>
<td>Destination Audit interval. This timer controls the interval at which RST/DAUD messages are sent when destination audit is activated. Destination audit is activated on receipt of a TFP/DUNA. If a TFA/DAVA is received, destination audit is deactivated.</td>
<td>Format: Numeric&lt;br&gt;Range: 1000 - 120000 msecs&lt;br&gt;Default: 60000 msecs</td>
</tr>
<tr>
<td>Timer T15</td>
<td>Destination Congestion Test Delay. This timer controls the length of the wait prior to starting the signaling route set congestion test.</td>
<td>Format: Numeric&lt;br&gt;Range: 100 - 10000 msecs&lt;br&gt;Default: 2000 msecs</td>
</tr>
<tr>
<td>Timer T16</td>
<td>Destination Congestion Test Timeout. This timer controls the length of the wait for the route set congestion status update.</td>
<td>Format: Numeric&lt;br&gt;Range: 100 - 10000 msecs&lt;br&gt;Default: 1000 msecs</td>
</tr>
<tr>
<td>SLS Rotation</td>
<td>This value specifies whether the SLS rotation procedure is enabled for egress messages. If SLS rotation is <strong>Enabled</strong>, the SLS value of messages will be rotated before routing the messages to network.</td>
<td>Format: Drop-down list&lt;br&gt;Range: Disabled, Enabled&lt;br&gt;Default: Enabled</td>
</tr>
</tbody>
</table>

### Viewing MTP3 Options

Use this task to view MTP3 Options.

Select **SS7/Sigtran > Configuration > MTP3 Options**.
The SS7/Sigtran > Configuration > MTP3 Options page appears with the MTP3 options listed. For field definitions, see *MTP3 Options elements*.

**Editing MTP3 Options**

Use this task to edit MTP3 Options.

1. Select SS7/Sigtran > Configuration > MTP3 Options.
   
   The SS7/Sigtran > Configuration > MTP3 Options page appears.

2. In the Value fields, make the desired changes. For field definitions, see *MTP3 Options elements*.

3. Click Apply to save the data.
   
   The changes are added to the configuration and will be used the next time a timer is started.

**M3UA Options**

The M3UA Options page shows the M3UA timers and their current values. The page enables you to change the value associated with a timer.

**M3UA Options elements**

*Table 19: M3UA Options Elements* describes the information on the SS7/Sigtran > Configuration > M3UA Options page:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
</table>
| State Management ACK Timer | This timer controls how long M3UA waits for ASP state and traffic management message acknowledgements. If this timer expires, the message may be retransmitted. In the case of M3UA heartbeats, if no BEAT-ACK is received in two-times this value, the SCTP association will be restarted. | Format: Numeric  
  Range: 200 - 1200 msecs  
  Default: 800 msecs |
| M3UA Heartbeating     | This value specifies whether M3UA heartbeating is enabled for all M3UA associations. If M3UA heartbeating is enabled, the M3UA Heartbeat Interval field specifies the rate at which M3UA heartbeats are sent. | Format: Drop-down list  
  Range: Enabled, Disabled  
  Default: Disabled. |
| M3UA Heartbeat Interval | This value is the interval at which M3UA BEAT messages will be sent on each association when M3UA heartbeating is enabled. This value has no meaning when M3UA heartbeating is disabled. | Format: Numeric  
  Range: 100 - 10000 msecs  
  Default: 5000 msecs |
Viewing M3UA Options

Use this task to view M3UA Options.

Select SS7/Sigtran > Configuration > M3UA Options.

The SS7/Sigtran > Configuration > M3UA Options page appears with the M3UA Options listed.

For field definitions, see M3UA Options elements.

Editing M3UA Options

Use this task to edit M3UA Options.

1. Select SS7/Sigtran > Configuration > M3UA Options.

   The SS7/Sigtran > Configuration > M3UA Options page appears.

2. In the Value fields, make the desired changes. For field definitions, see M3UA Options elements.

3. Click Apply to save the data.

   The changes are added to the configuration. The new timer value will be used the next time the timer is started.

Local Congestion Options

The SS7/Sigtran > Configuration > Local Congestion Options page is a view-only list of the congestion management configuration parameters. There are two sets of parameters:

- The parameters that define the maximum capacities of the resources that are monitored by congestion management. The system automatically calculates the alarm onset and abatement thresholds from these maximum capacities. These parameters are the first nine parameters listed on the page (through SCTP Aggregate Association Writer Queue Utilization).
- The parameters that define the message treatment percentages for each MP congestion level. There are nine view-only configuration parameters; three for each MP congestion level (labeled CL1, CL2, and CL3).

Table 20: Alarm Severity for Onset and Abatement Thresholds for minor, major, and critical alarms are based on a fixed percentage of the maximum configured value in Table 21: Local Congestion Options Elements.

<table>
<thead>
<tr>
<th>Severity</th>
<th>Onset %</th>
<th>Abate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Major</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>Critical</td>
<td>95</td>
<td>90</td>
</tr>
</tbody>
</table>
Local Congestion Options elements

*Table 21: Local Congestion Options Elements* describes the information on the **SS7/Sigtran > Configuration > Local Congestion Options** page:

Table 21: Local Congestion Options Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum SS7 Process CPU Utilization</td>
<td>The SS7 process is responsible for all SS7 processing on an MP. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 90%</td>
</tr>
<tr>
<td>Maximum Ingress Message Rate</td>
<td>The ingress message rate measures the data messages (SI &gt; 0) per second that the MP receives from the network. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 15,000 msgs/sec.</td>
</tr>
<tr>
<td>Maximum PDU Buffer Pool Size for ANSI</td>
<td>A Protocol Data Unit (PDU) buffer is allocated for each ANSI message that arrives at an MP and is de-allocated when message processing completes. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 11000 PDUs</td>
</tr>
<tr>
<td>Maximum PDU Buffer Pool Size for ITUI/ITUN/ITUN24</td>
<td>A Protocol Data Unit buffer is allocated for each ITUI message that arrives at an MP and is de-allocated when message processing completes. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 11000 PDUs</td>
</tr>
<tr>
<td>Maximum SCCP Stack Event Queue Size</td>
<td>The internal event queue to the SCCP Stack which is responsible for all SCCP sublayer processing. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 4,000 events</td>
</tr>
<tr>
<td>Maximum M3RL Stack Event Queue Size</td>
<td>The internal event queue to the M3RL stack, which is responsible for all M3RL non-management (SI &gt; 0) processing. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 4,000 events</td>
</tr>
<tr>
<td>Maximum M3RL Network Management Event Queue Size</td>
<td>The internal event queue to M3RL Network Management which is responsible for all M3RL management (SI = 0) processing. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 1000 events</td>
</tr>
<tr>
<td>Element</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Maximum M3UA Stack Event Queue Size</td>
<td>The internal egress event queue to the M3UA Stack which is responsible for all M3UA Stack processing. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 2,000 events</td>
</tr>
<tr>
<td>Maximum SCTP Single Association Writer Queue Size</td>
<td>The internal egress event queue to an SCTP Association Handler which is responsible for all non-Linux SCTP sublayer processing for a individual SCTP association. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 1,000 events</td>
</tr>
<tr>
<td>Maximum SCTP Aggregate Association Writer Queue Size</td>
<td>The internal egress event queue used to limit the maximum number of egress messages queued on all SCTP Association Handler Threads. Thresholds for minor, major and critical alarms are based on a fixed percentage of this maximum value. Default: 10,000 events</td>
</tr>
<tr>
<td>CL1 Message Treatment - Normal</td>
<td>Percentage of ingress messages that will receive normal processing treatment when the local MP congestion level is CL1. Default: 80%</td>
</tr>
<tr>
<td>CL1 Message Treatment - Discard &amp; Respond</td>
<td>Percentage of ingress messages that will be discarded and an SCCP UDTS/XUDTS response is sent (when requested by the originator) when the local MP congestion level is CL1. Default: 10%</td>
</tr>
<tr>
<td>CL1 Message Treatment - Discard Only</td>
<td>Percentage of ingress messages that will be discarded without any further processing when the local MP congestion level is CL1. Default: 10%</td>
</tr>
<tr>
<td>CL2 Message Treatment - Normal</td>
<td>Percentage of ingress messages that will receive normal processing treatment when the local MP congestion level is CL2. Default: 70%</td>
</tr>
<tr>
<td>CL2 Message Treatment - Discard &amp; Respond</td>
<td>Percentage of ingress messages that will be discarded and an SCCP UDTS/XUDTS response is sent (when requested by the originator) when the local MP congestion level is CL2. Default: 10%</td>
</tr>
<tr>
<td>CL2 Message Treatment - Discard Only</td>
<td>Percentage of ingress messages that will be discarded without any further processing when the local MP congestion level is CL2. Default: 20%</td>
</tr>
<tr>
<td>CL3 Message Treatment - Normal</td>
<td>Percentage of ingress messages that will receive normal processing treatment when the local MP congestion level is CL3. Default: 60%</td>
</tr>
</tbody>
</table>
Percentage of ingress messages that will be discarded and an SCCP UDTS/XUDTS response is sent (when requested by the originator) when the local MP congestion level is CL3. Default: 0%

Percentage of ingress messages that will be discarded without any further processing when the local MP congestion level is CL3. Default: 40%

### Viewing Local Congestion Options

Use this task to view Local Congestion Options.

Select **SS7/Sigtran > Configuration > Local Congestion Options**

The **SS7/Sigtran > Configuration > Local Congestion Options** page appears with the Local Congestion Options listed.

For field definitions, see *Local Congestion Options elements*.

### Capacity Constraint Options

The **SS7/Sigtran > Configuration > Capacity Constraint Options** page shows the maximum and current capacity of each SS7 Constraint.

On the **SS7/Sigtran > Configuration > Capacity Constraint Options** page you can configure the following values:

- **Alarm At** - The value at which the alarm for a specific constraint needs to be raised
- **Alarm Severity** - The severity of the alarm to be raised
- **Alarm Enabled** - Enable or disable the alarm for a specific constraint

Click the **Apply** button at the bottom of the page to save your changes.

### Capacity Constraint Options elements

*Table 22: Capacity Constraint Options Elements* describes the information on the **SS7/Sigtran > Configuration > Capacity Constraint Options** page:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS7 Constraint values</td>
<td>List of available constraint values:</td>
</tr>
<tr>
<td></td>
<td>• Adjacent Server Groups Per Site</td>
</tr>
<tr>
<td></td>
<td>• Adjacent Servers Per Adjacent Server Group</td>
</tr>
</tbody>
</table>

---

E73345 Revision 02, March 2017
### SS7 Configuration

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SCTP Association Per MP Server</td>
<td></td>
</tr>
<tr>
<td>• LSPs Per Site</td>
<td></td>
</tr>
<tr>
<td>• LSUs Per LSP</td>
<td></td>
</tr>
<tr>
<td>• Links Per Association</td>
<td></td>
</tr>
<tr>
<td>• Links Per Linkset</td>
<td></td>
</tr>
<tr>
<td>• Links Per Site</td>
<td></td>
</tr>
<tr>
<td>• Linksets Per Site</td>
<td></td>
</tr>
<tr>
<td>• RMUs Per Site</td>
<td></td>
</tr>
<tr>
<td>• RSPs Per Site</td>
<td></td>
</tr>
<tr>
<td>• Routes Per RSP Per MP</td>
<td></td>
</tr>
<tr>
<td>• Routes Per Site</td>
<td></td>
</tr>
<tr>
<td>• Server Groups Per LSP</td>
<td></td>
</tr>
<tr>
<td>• Server Groups Per Site</td>
<td></td>
</tr>
<tr>
<td>• Servers Per MP Server Group</td>
<td></td>
</tr>
<tr>
<td>• Adjacent Servers Per Site</td>
<td></td>
</tr>
<tr>
<td>• SCTP Association Configuration Sets Per Site</td>
<td></td>
</tr>
<tr>
<td>• SCTP Associations Per Site</td>
<td></td>
</tr>
</tbody>
</table>

Maximum Capacity
- Maximum capacity supported by the system.

Current Capacity
- Capacity used by the current system configuration.

Alarm At
- Use this field to set the value at which the specified alarm will be raised.

Alarm Severity
- Use this drop-down list to select the alarm severity value.

Alarm Enabled
- Use this check box to enable the specified alarm.

Apply
- Use this button to apply your selections.

**Table 23: SS7 Constraint Values**

**Table 23: SS7 Constraint Values**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdjSvrGrpsPerSite</td>
<td>Number of Adjacent Server Groups (STPs) supported per SOAM pair.</td>
</tr>
<tr>
<td>AdjSvrsPerAdjSvrGrp</td>
<td>Number of Adjacent Nodes (Servers) supported in an Adjacent Server group (STP).</td>
</tr>
<tr>
<td>AdjNodesPerSite (AdjSvrsPerSite)</td>
<td>Number of Adjacent Nodes (Adjacent Servers) supported per SOAM pair.</td>
</tr>
<tr>
<td>LinksetsPerSite</td>
<td>Number of SS7 linksets supported per SOAM pair.</td>
</tr>
<tr>
<td>LinksPerAssociation</td>
<td>Number of SS7 links supported per SCTP association.</td>
</tr>
<tr>
<td>LinksPerLinkset</td>
<td>Number of links supported per linkset.</td>
</tr>
<tr>
<td>LinksPerSite</td>
<td>Numbers of SS7 links supported per SOAM pair.</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LSPsPerSite</td>
<td>Number of LSPs supported per SOAM pair.</td>
</tr>
<tr>
<td>RMUsPerSite</td>
<td>Numbers of RMUs supported per SOAM pair</td>
</tr>
<tr>
<td>RoutesPerRSPPerMP</td>
<td>Number of SS7 Routes supported per RSP on one MP.</td>
</tr>
<tr>
<td>RoutesPerSite</td>
<td>Number of SS7 Routes supported per SOAM pair.</td>
</tr>
<tr>
<td>RSPsPerSite</td>
<td>Number of RSPs supported per SOAM pair.</td>
</tr>
<tr>
<td>TransConfigsPerSystem</td>
<td>Number of Transport Configuration Sets supported per System.</td>
</tr>
<tr>
<td>(SCTPAssocConfigsPerSystem)</td>
<td></td>
</tr>
<tr>
<td>AssocPerSvr (SCTPAssocPerMP)</td>
<td>Number of SCTP associations supported per MP Server.</td>
</tr>
<tr>
<td>TransportsPerSite</td>
<td>Number of Transports (SCTP associations) supported per SOAM pair.</td>
</tr>
<tr>
<td>(SCTPAssocPerSite)</td>
<td></td>
</tr>
<tr>
<td>ServerGroupsPerLSP</td>
<td>Number of Server Groups per LSP</td>
</tr>
<tr>
<td>ServerGroupsPerSite</td>
<td>Number of Server groups (MPs) supported per SOAM pair.</td>
</tr>
<tr>
<td>ServersPerMP</td>
<td>Number of Servers per MP.</td>
</tr>
</tbody>
</table>

### Viewing Capacity Constraint Options

Use this task to view Capacity Constraint Options.

Select **SS7/Sigtran > Configuration > Capacity Constraint Options**

The **SS7/Sigtran > Configuration > Capacity Constraint Options** page appears.

For field definitions, see *Capacity Constraint Options elements*. 
Chapter 4

SS7 Maintenance

Topics:
- The SS7 Maintenance menu.....82
- Color codes on the Maintenance pages.....82
- Local SCCP Users Maintenance.....83
- Remote Signaling Points Maintenance.....85
- Remote MTP3 Users Maintenance.....88
- Link Set Maintenance.....91
- Link Maintenance.....93

SS7 Maintenance provides maintenance and troubleshooting capabilities on Local SCCP Users, Remote Signaling Points, Remote MTP3 Users, Link Sets, and Links.
The SS7 Maintenance menu

The SS7/Sigtran > Maintenance GUI pages provides maintenance and troubleshooting capabilities on Local SCCP Users, Remote Signaling Points, Remote MTP3 Users, Link Sets, and Links.

The Maintenance information is helpful under alarm conditions as a starting point for gathering additional information. For example, the maintenance pages display the timestamp when a Link Set or Link goes down. The timestamp can then be used to narrow the search in the event history log and measurements reports.

Errors, warnings, and the possible need for maintenance activity are shown in the GUI pages as colored cells so that the conditions are readily identifiable.

After rudimentary information for troubleshooting has been obtained, the network operator can continue investigating under the Alarms & Events and Measurements options on the GUI.

The menu also enables you to perform maintenance-related tasks such as:

- Enabling and disabling Links.
- Resetting the network status of Routes.
- Resetting the MP’s SCCP status of the subsystem and point code.
- Enabling and disabling LSUs.

Status information is obtained on the system through a collection processed by the SOAM server collects data from the MP Servers.

A user group must have permissions to view or execute any of the procedures on the SS7/Sigtran Maintenance menu. If a group does not have permissions for the Maintenance menu options for Local SCCP Users, Remote Signaling Points, Remote MTP3 Users, Link Sets, or Links, these options will not appear in the GUI.

SS7 maintenance is available from the SOAM. All maintenance links are active when the user is connected to the SOAM.

Color codes on the Maintenance pages

The Table 24: Maintenance Page Color Codes describe the color coding of the potential problems located on the SS7/Sigtran > Maintenance page.

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red background</td>
<td>Indicates an error.</td>
</tr>
<tr>
<td>Orange background</td>
<td>Indicates maintenance activity.</td>
</tr>
<tr>
<td>Yellow background</td>
<td>Used for warnings such as congestion or some of the links in a link set are down.</td>
</tr>
<tr>
<td>Gray background</td>
<td>Indicates that conditions are normal.</td>
</tr>
</tbody>
</table>
Local SCCP Users Maintenance

The Local SCCP Users Maintenance page shows the status of each configured LSU.

Colored cells may indicate the need for maintenance activity. If status cannot be collected from a server, cells with gray text indicate the last known information reported from the server.

On the SS7/Sigtran > Configuration > Local SCCP Users page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.

- To Show Errors or Warnings, check the Errors Only box. This will filter the orange, red or yellow rows that match the filtered values.

- Sort the list entries in ascending or descending order by Signaling Network Element Name, SSN, Point Code, SS7 Domain, Application Name, SSN Status or Up/Down Since, by clicking the column heading.

- Administrative State is either Enable or Disable. Clicking Enable / Disable button allows the Admin State to be changed from enabled or disabled.

- Unchecked Pause box causes the screen to refresh after every 15 seconds by default. If the pause update box is checked, updates will stop.

Local SCCP Users Maintenance elements

Table 25: Local SCCP Users Maintenance Elements describes the information on the SS7/Sigtran > Maintenance > Local SCCP Users page.

Table 25: Local SCCP Users Maintenance Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signaling Network Element Name</td>
<td>The Signaling Network Element Name to which the Local SCCP User is associated.</td>
</tr>
<tr>
<td>SSN</td>
<td>The subsystem number served by this Local SCCP User.</td>
</tr>
<tr>
<td>(Local Signaling Point) Point Code</td>
<td>The point code of the Local Signaling Point associated with this Local SCCP User.</td>
</tr>
<tr>
<td>(Local Signaling Point) SS7 Domain</td>
<td>The SS7 domain of the Local Signaling Point.</td>
</tr>
<tr>
<td>Application Name</td>
<td>Application Name associated with the Local SCCP User.</td>
</tr>
</tbody>
</table>
The SSN Status. Possible values are **Enabled** and **Disabled**. These values indicate whether the Local SCCP subsystem is enabled or disabled.

The user can manually disable an LSU (see *Disabling a Local SCCP User*). The Local SCCP subsystem will also be automatically disabled under the following conditions:

- When SCCP receives a notification from the OAM subsystem that a Local Subsystem and SCCP User have been added to the MP’s database.
- In some cases, when SCCP receives a notification from the OAM Subsystem that an enabled Local Subsystem and SCCP User have been deleted from the MP database.

The user can manually enable an LSU (see *Enabling a Local SCCP User*). When SCCP receives a notification from the OAM subsystem that a local SCCP user has been enabled, SCCP sets the subsystem status to **Enabled**.

**Viewing Local SCCP Users status**

Use this procedure to view status information for Local SCCP Users.

1. Select **SS7/Sigtran > Maintenance > Local SCCP Users**.

   The **SS7/Sigtran > Maintenance > Local SCCP Users** page appears. For field definitions, see *Local SCCP Users Maintenance elements*.

2. Check the **Pause updates** box to stop the 15 second auto refresh for the page (lower right corner). It is unchecked by default.

**Enabling a Local SCCP User**

The **Enable** command causes SCCP to set the Local SCCP subsystem status to **Enabled**.

LSUs must be enabled one LSU at a time.

1. Select **SS7/Sigtran > Maintenance > Local SCCP Users**.

   The **SS7/Sigtran > Maintenance > Local SCCP Users** page appears.

2. Check the **Pause updates** box to stop the 15 second auto refresh for the page (lower right corner). It is unchecked by default.

3. Select the Local SCCP User, then click **Enable**.

   A confirmation message appears.

   The MP Server will disregard the command if the LSU is already in the **Enabled** state.
4. Click OK to confirm.
   The SSN Status field changes to Enabled.
   The LSU is enabled. The Up/Down Since column now indicates when the LSU transitioned into the Enabled state.

Disabling a Local SCCP User

The Disable command causes the status of the Local SCCP subsystem to change to Disabled.
LSUs must be disabled one LSU at a time.

1. Select SS7/Sigtran > Maintenance > Local SCCP User.
   The SS7/Sigtran > Maintenance > Local SCCP Users page appears.

2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner).
   It is unchecked by default.

3. Select the Local SCCP User, then click Disable.
   The MP Server will disregard the command if the LSU is already in the Disabled state.
   A confirmation message appears.

4. Click OK to confirm.
   The SSN Status field changes to Disabled, and the cell turns red.
   The LSU is disabled. The Up/Down Since column now indicates when the LSU transitioned into the Disabled state.

Remote Signaling Points Maintenance

The SS7/Sigtran > Maintenance > Remote Signaling Points page shows the status of each configured RSP and the Routes to that RSP. The status information is shown from the perspective of each MP at the site.

Each RSP can have up to two Routes. The Route status is divided into link set status and network status. The network status is the status of the RSP as reported from the network via the STP.

Colored cells may indicate the need for maintenance activity. If status cannot be collected from a server, cells with gray text indicate the last known information reported from the server.

On the SS7/Sigtran > Maintenance > Remote Signaling Points page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (==, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.

- To Show Errors or Warnings, check the Errors Only box. This will filter the orange, red or yellow rows that match the filtered values.
• Sort the list entries in ascending or descending order by Remote Point Code, SS7 Domain, RSP Status, Route 1 Status Link Set Status, Route 1 Status Network Status, Route 2 Status Link Set Status, Route 2 Status Network Status, Time of Last Status Change, MP Server Hostname, Route 1 Details Route Cost, Route 1 Details Link Set Name, Route 1 Details Adjacent Point Code, Route 2 Details Route Cost, Route 2 Details Link Set Name, or Route 2 Details Adjacent Point Code, by clicking the column heading.

• Unchecked Pause box causes the screen to refresh after every 15 seconds by default. If the pause update box is checked, updates will stop.

• The Reset action resets the MP’s view of the network status of both routes to Available. This action allows the network operator to attempt signaling on the routes.

### Remote Signaling Points Maintenance elements

*Table 12: Remote Signaling Points Elements* describes the information on the SS7/Sigtran > Maintenance > Remote Signaling Points page.

*Table 26: Remote Signaling Points Maintenance Elements*

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Point Code</td>
<td>The point code for this RSP.</td>
</tr>
<tr>
<td>SS7 Domain</td>
<td>The SS7 domain of the RSP.</td>
</tr>
<tr>
<td>RSP Status</td>
<td>RSP Status is an aggregation of the statuses for Route 1 and Route 2. The intent is to display the MP Server’s ability to signal to the RSP. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>• Available - at least one route is available.</td>
</tr>
<tr>
<td></td>
<td>• Unavailable - both routes are down/unavailable.</td>
</tr>
<tr>
<td></td>
<td>• Congested - a report has been received from the network that the RSP is congested, but not unavailable.</td>
</tr>
<tr>
<td></td>
<td>• Forced Standby - the MP Server’s HA state has been manually set to Forced Standby via the HA Status page. All signaling is inhibited for MP Servers that are in the Forced Standby state.</td>
</tr>
<tr>
<td></td>
<td>• Non-Preferred - the lower cost route is down/unavailable, causing signaling to use the non-preferred route.</td>
</tr>
<tr>
<td></td>
<td>• Application Disabled - the application has been manually disabled via the Server Status page.</td>
</tr>
<tr>
<td>Route X Status, where Route X is Route 1 or Route 2</td>
<td>Route Status is an aggregation of Link Set Status and Network Status. If either the Link Set Status is Down or the Network Status is Unavailable, the route is Unavailable.</td>
</tr>
<tr>
<td>Link Set Status</td>
<td>Corresponds to the status of the Link Set that the Route is configured to use, as shown on the Link Set Maintenance page. Possible values are Up or Down. If Down, more information can be found on the Link Set Maintenance page. For information on Link Set Maintenance, see Link Set Maintenance.</td>
</tr>
<tr>
<td>Network Status</td>
<td>Indicates the Route status reported from the network. Possible values are Available or Unavailable. Unavailable means that a</td>
</tr>
</tbody>
</table>
DUNA/TFP was received from a signaling gateway indicating that the RSP is not accessible from that signaling gateway. A restricted route is displayed as available.

Indicates the last time when any status change occurred on this row, including changes for the RSP status and the link set and network status for Route 1 and Route 2.

The hostname of the MP Server reporting the status.

Route Details provides detailed information about Route 1 and Route 2.

The cost associated with the Route.

The Link Set associated with the Route.

The Adjacent Point Code associated with the Route.

Unchecked by default to refresh every 15 seconds. Checked will stop the updates.

Viewing Remote Signaling Points status

Use this task to view status information for Remote Signaling Points.


The SS7/Sigtran > Maintenance > Remote Signaling Points page appears. For field definitions, see Remote Signaling Points Maintenance elements.

2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner). It is unchecked by default.

About resetting the Network Status of the routes

The Reset action allows the network operator to reset the MP Server’s view of the Network Status for both Routes to Available. If the Link Set Status values for the two Routes do not prevent signaling, then both Routes (and the RSP) will become available for signaling. The Link Set Status is not affected by the Reset action. Resetting the Network Status for the Routes may cause the RSP Status to change.

Reset should be used only in cases in which the network operator suspects that a DAVA/TFA management message may have been lost so that the MP has a stale view of the true network status. If Reset is used and the Network Status was correct (was Unavailable), then response method signaling will set the Network Status back to the correct value. Clicking Reset when the route Network Status is already Available has no effect.

Reset can also be used to reset the MP’s view of the RSP’s congestion status. In other words, Reset will make the MP Server think that the RSP is no longer congested. Again, if the RSP really is congested, response method signaling may set it back to Congested.

Reset has no effect on an RSP for which both Routes are Up/Available and the RSP is not congested.
Resetting the Network Status of the Routes

Use this task to reset the Network Status of the Routes.

   The SS7/Sigtran > Maintenance > Remote Signaling Points page appears.

2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner).
   It is unchecked by default.

3. Click Reset in the row of the appropriate Route.
   A confirmation message appears.

4. Click OK to confirm.
   The Network Status field shows Available.

Remote MTP3 Users Maintenance

The SS7/Sigtran > Maintenance > Remote MTP3 Users page shows the Operational Status of each configured RMU. The subsystem statuses are shown from the perspective of each MP Server.

Colored cells may indicate the need for maintenance activity. If status cannot be collected from a server, cells with gray text indicate the last known information reported from the server.

On the SS7/Sigtran > Maintenance > Remote MTP3 Users page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, ! =, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.

- To Show Errors or Warnings, check the Errors Only box. This will filter the orange, red or yellow rows that match the filtered values.

- Sort the list entries in ascending or descending order by Remote Point Code, SS7 Domain, Remote SSN, MP Server Hostname, Operational Status, Operational SSN Reason, Operational Point Code Reason, or Available / Unavailable Since, by clicking the column heading.

- Unchecked Pause box causes the screen to refresh after every 15 seconds by default. If the pause update box is checked, updates will stop.

- The Reset action causes the MP’s view of the remote subsystem to be reset, allowing signaling attempts to occur.

Remote MTP3 Users Maintenance elements

Table 27: Remote MTP3 Users Maintenance Elements describes the information on the SS7/Sigtran > Maintenance > Remote MTP3 Users page.
### Table 27: Remote MTP3 Users Maintenance Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Point Code</td>
<td>The Remote Point Code associated with the RMU.</td>
</tr>
<tr>
<td>SS7 Domain</td>
<td>The SS7 domain of the RMU.</td>
</tr>
<tr>
<td>Remote SSN</td>
<td>The Remote Subsystem Number whose status is being tracked.</td>
</tr>
<tr>
<td>MP Server Hostname</td>
<td>The hostname of the MP Server reporting the status.</td>
</tr>
<tr>
<td>Operational Status</td>
<td>RMU status is an aggregation of the Remote PC and Remote SSN status that indicates the MP's ability to signal to the specified RMU. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>- <strong>Available</strong> - the RMU is available (none of the conditions for <strong>Unavailable</strong> is true). A congested point code can have a status of <strong>Available</strong>.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Unavailable</strong> - the SSN is prohibited or the point code is unavailable.</td>
</tr>
<tr>
<td>Operational SSN Reason</td>
<td>Shows one of these values:</td>
</tr>
<tr>
<td></td>
<td>- <strong>Normal</strong> - the MP Server thinks the RMU's subsystem is fully accessible for SCCP signaling.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Prohibited</strong> - an SSP was received for the point code and subsystem.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Unknown</strong> - DUPU/UPU was received for the point code indicating that SCCP is unavailable on that RSP.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Application Disabled</strong> - the application has been manually disabled via the <strong>Server Status</strong> page.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Forced Standby</strong> - the MP Server's HA state has been manually set to <strong>Forced Standby</strong> via the <strong>HA Status</strong> page. All signaling is inhibited for MP Servers that are in the <strong>Forced Standby</strong> state.</td>
</tr>
<tr>
<td>A value of ITU subsystem congestion (SSC) is not yet supported.</td>
<td></td>
</tr>
<tr>
<td>Operational Point Code</td>
<td>Shows one of these values:</td>
</tr>
<tr>
<td>Reason</td>
<td>- <strong>Normal</strong> - the point code is normal (none of the other conditions listed in this section is true).</td>
</tr>
<tr>
<td></td>
<td>- <strong>User Part Unavailable</strong> - an MTP-Status indicating user part unavailable or unknown is received from the signaling gateway.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Point Code Paused</strong> - SCCP received an MTP-Pause indicating that the point code is inaccessible for signaling.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Congested</strong> - an MTP-Status message is received indicating that the point code is congested.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Application Disabled</strong> - the application has been manually disabled via the <strong>Server Status</strong> page.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Forced Standby</strong> - the MP Server's HA state has been manually set to <strong>Forced Standby</strong> via the <strong>HA Status</strong> page. All signaling is inhibited for MP Servers that are in the <strong>Forced Standby</strong> state.</td>
</tr>
<tr>
<td>Available/Unavailable</td>
<td>Indicates the last time when the operational status changed.</td>
</tr>
<tr>
<td>Since</td>
<td></td>
</tr>
</tbody>
</table>
### Element | Description
--- | ---
Pause updates | Unchecked by default to refresh every 15 seconds. Checked will stop the updates.

### Viewing Remote MTP3 Users status

Use this procedure to view status information for Remote MTP3 Users.

   
   The SS7/Sigtran > Maintenance > Remote MTP3 Users page appears. For field definitions, see [Remote MTP3 Users Maintenance elements](#).
   
2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner). It is unchecked by default.

### About resetting the subsystem and point code status

The **Reset** action enables the network operator to reset the MP’s SCCP view of the SSN status to allowed and the point code status to available.

**Reset** should be used only if the network operator suspects that an SSA or MTP-Resume management message may have been lost, resulting in the MP Server having a stale view of the true network status. If **Reset** is used and the network status was correct (was really Unavailable), then response method signaling will set the network status back to the correct value.

**Reset** can also be used to reset the MP’s view of the point code’s congestion status. In other words, **Reset** will make the MP Server SCCP think that the point code is no longer congested. Again, if the point code really is congested, response method signaling may set it back to Congested. **Reset** has no effect on an RMU for which both **SSN Reason** and **PC Reason** are Normal.

### Resetting the subsystem and point code status

Use this task to reset the subsystem and point code status.

   
   The SS7/Sigtran > Maintenance > Remote MTP3 Users page appears.

2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner). It is unchecked by default.

3. Click **Reset** in the row of the appropriate route.
   
   A confirmation message appears.

4. Click **OK** to confirm.
   
   The SSN status is reset to Allowed. The point code status is reset to Available.
Link Set Maintenance

The SS7/Sigtran > Maintenance > Linksets page shows status information for each Link Set as viewed by each MP Server. Each MP Server reports status only for Link Sets hosted by that MP Server (Link Sets that include Links that use Associations hosted by the MP Server).

Each Link Set's Operational Status and the reason for the Operational Status are shown.

The SS7/Sigtran > Maintenance > Linksets page does not distinguish between links down for maintenance and links down due to errors. Colored cells may indicate the need for maintenance activity. When the server’s collection status is Unknown, cells with gray text indicate the last known information about the Link Set.

On the SS7/Sigtran > Maintenance > Linksets page, you can perform the following actions:

- The Filter allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the GO button to enable the filter. The RESET button will reset the filter.
- To Show Errors or Warnings, check the Errors Only box. This will filter the orange, red or yellow rows that match the filtered values.
- Sort the list entries in ascending or descending order by Signaling Network Element Name, Link Set Name, MP Server Hostname, Local Signaling Point, SS7 Domain, Adjacent Remote Point Code, Operational Status, Operational Reason, MP Server HA Status, or Up / Down Since, by clicking the column heading.
- Unchecked Pause box causes the screen to refresh after every 15 seconds by default. If the pause update box is checked, updates will stop.

For additional details on Link status, see Link Maintenance.

Link Set Maintenance elements

Table 28: Link Sets Maintenance Elements describes information on the SS7/Sigtran > Maintenance > Link Sets page:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signaling Network Element Name</td>
<td>The name of the Signaling Network Element associated with the Link Set.</td>
</tr>
<tr>
<td>Link Set Name</td>
<td>The name that identifies this Link Set.</td>
</tr>
<tr>
<td>MP Server Hostname</td>
<td>The hostname for the MP Server.</td>
</tr>
<tr>
<td>Local Signaling Point</td>
<td>The LSP associated with the Link Set.</td>
</tr>
<tr>
<td>SS7 Domain</td>
<td>The SS7 domain of the LSP.</td>
</tr>
<tr>
<td>Adjacent Remote Point Code</td>
<td>The point code of the Adjacent Remote Signaling Point representing the Adjacent Signaling Gateway to be served by this Link Set.</td>
</tr>
</tbody>
</table>
Link Set Operational Status and Reason

This list shows the possible values that may appear in the Operational Status and Operational Reason fields of the SS7/Sigtran > Maintenance > Link Sets page. The Operational Status is either Up or Down. Up indicates that the Link Set can be used for signaling. Down indicates that the Link Set cannot be used for signaling. If the Status is Down, the Operational Reason provides information about why it is down.

Possible values of the Operational Reason field where Status=Down are:

- Application Disabled-the MP Server’s application Administrative State has been manually Disabled via the Server Status page.
- All Links Normal-this status occurs when all of the configured Links that reference this Link Set are reporting an Operational Reason of Normal.
- Forced Standby-the MP Server’s HA state has been manually set to Forced Standby via the HA Status page. All signaling is inhibited for MP Servers that are in the Forced Standby state.
- No Link Defined-a link is not defined for the link set.
- 0 of N Links Normal-all Links configured on this MP for this Link Set are reporting an Operational Reason other than Normal.

Possible values of the Operational Reason field where Status=Up are:

- All Links Normal-this is the desired status of the server. This status occurs when all of the configured Links that reference this Link Set are reporting an Operational Reason of Normal.
- M of N Links Normal-some of the configured Links on an MP server that reference this Link Set are reporting an Operational Reason of Normal. N represents the sum of Links on the MP server that belong to the Link Set. M represents the subset of N that are reporting an Operational Reason of Normal.

Viewing Link Set status

Use this procedure to view information on the Operational Status of a Link Set.

Select SS7/Sigtran > Maintenance > Link Sets
The SS7/Sigtran > Maintenance > Link Sets page appears. For field definitions, see Link Set Maintenance elements.

**Link Maintenance**

The SS7/Sigtran > Maintenance > Links page shows the Administrative State and Operational Status of each SS7 Link.

Each MP Server reports status only for Links hosted by that MP Server.

Colored cells may indicate the need for maintenance activity. Red cells indicate failures. Orange cells indicate maintenance conditions. When the active server's collection status is Unknown, cells with gray text indicate the last known information about the Link.

You can obtain additional information about the Link status by viewing the status of the Transport that hosts the link (refer to the Transport Manager User's Guide in Help).

On the SS7/Sigtran > Configuration > Links page, you can perform the following actions:

- The **Filter** allows the user to only display the row(s) that match specified criteria using the drop-down list that contains the field names. The next drop-down (right) lists all of matching operators (=, !=, >, >=, <, <=, Like and Is Null). The text box is the value selector used to enter the matching value. Click the **GO** button to enable the filter. The **RESET** button will reset the filter.

- To Show Errors or Warnings, check the **Errors Only** box. This will filter the orange, red or yellow rows that match the filtered values.

- Sort the list entries in ascending or descending order by Signaling Network Element Name, Link Name, Link Set, MP Server Hostname, Admin State, Operational Status, Operational Reason, MP Server HA Status, or Up / Down Since, by clicking the column heading.

- Administrative State is either **Enable** or **Disable**. Clicking **Enable / Disable** button allows the **Admin State** to be changed from enabled or disabled.

- Unchecked **Pause** box causes the screen to refresh after every 15 seconds by default. If the pause update box is checked, updates will stop.

**Links Maintenance elements**

*Table 29: Links Maintenance Elements* describes the information on the SS7/Sigtran > Maintenance > Links page:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signaling Network Element Name</td>
<td>The Signaling Network Element associated with the Link.</td>
</tr>
<tr>
<td>Link Name</td>
<td>The name that identifies this Link.</td>
</tr>
<tr>
<td>Link Set</td>
<td>The name that identifies this Link Set.</td>
</tr>
<tr>
<td>MP Server Hostname</td>
<td>The hostname for the MP server associated with this Link.</td>
</tr>
</tbody>
</table>
**Element** | **Description**
--- | ---
Admin State | Shows the Link’s administrative state: *Enabled* or *Disabled*. In the *Enabled* administrative state, the Link is in the ASP-Active state on an active MP Server or the ASP-INACTIVE state on a standby MP Server. In the *Disabled* administrative state, the Link is in the ASP-INACTIVE state on the MP Server and is unavailable for Sigtran signaling. When a new Link is configured, the Link is in the *Enabled* administrative state. The Link must be placed in the *Enabled* administrative state to bring the Link up. Orange color highlights the administrative state when it is *Disabled*.

**Operational Status** | The operational status of the Link: *Up* or *Down.*
**Operational Reason** | The reason a given operational status is shown. For information on a value listed in this field, see *Link Operational Status and Reason*.
**MP Server HA Status** | The high availability status of the MP server: *Active* or *Standby*.
**Up/Down Since** | The date and time that the Link came up or went down. For a newly added Link, the time is when the Link was configured. After a database restart, reboot, or initial startup before the Associations and Links are initialized, the value is the time when the application initialization runs.
**Pause updates** | Unchecked by default to refresh every 15 seconds. Checked will stop the updates.

### Link Operational Status and Reason

This list shows the possible values that may appear in the **Operational Status** and **Reason** fields of the SS7/Sigtran > Maintenance > Links page. The **Operational Status** of a Link is either *Up* or *Down*. *Up* indicates that the Link is available for signaling. *Down* indicates the Link is not available for signaling. If the status is *Down*, the **Operational Reason** provides information about why it is down.

Possible values of the **Operational Reason** field where **Status**=*Down* are:

- **Disabled**—the Link’s administrative state is *Disabled*. This is the initial operational status and reason for a newly configured Link. This reason is also shown when a link is manually disabled.
- **Application Disabled**—the Link’s administrative state is *Enabled* and the server’s application administrative state has been manually *Disabled* via the Server Status page.
- **Association Down**—the Link’s administrative state is *Enabled*, but the Link’s Association is in any of these *Down* states: Down/Disabled, Down/Connecting, Down/Blocked, or Down/Up Pending.
- **Forced Standby**—the Link’s administrative state is *Enabled* and the MP Server’s HA state has been manually set to **Forced Standby** via the HA Status page. All signaling is inhibited for MP Servers that are in the **Forced Standby** state.
- **Up Pending**—the Link’s administrative state is *Enabled*, but the ASP-ACTIVE-ACK has not yet been received.

Possible values of the **Operational Reason** field where **Status**=*Up* are:

- **Normal**—this status occurs when the administrative state is *Enabled* and the ASP-ACTIVE-ACK has been received.
Viewing Link status

Use this procedure to view information on the Administrative State and Operational Status of a Link.

1. Select SS7/Sigtran > Maintenance > Links.
   The SS7/Sigtran > Maintenance > Links page appears. For field definitions, see Links Maintenance elements.
2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner).
   It is unchecked by default.

Enabling a Link

Use this task to enable a link.

When a Link is put in the Enabled administrative state, the MP Server begins attempts to bring the Link to the ASP-ACTIVE state on an active MP Server or the ASP-INACTIVE state on a standby MP Server.

Links must be enabled one Link at a time.

1. Select SS7/Sigtran > Maintenance > Links.
   The SS7/Sigtran > Maintenance > Links page appears.
2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner).
   It is unchecked by default.
3. Select the Link, then click Enable.
   The MP Server will disregard the command if the Link is already in the selected administrative state.
   If the link you wish to enable is missing or displayed in gray text, it indicates a management network problem between the MP Server and the SOAM server from which your GUI session is hosted.
   A confirmation message appears.
4. Click OK to confirm.
   The Operational Status field shows Up. The Up/Down Since column now indicates when the Link transitioned into the Up status. The Enable action is now grayed out.

Disabling a Link

Use this task to disable a link.

Caution: Disabling a Link causes a Link alarm, and possibly, alarms for Link Sets, Routes, or node isolation.
When a Link is put in the **Disabled** administrative state, the MP Server begins attempts to place the Link in the ASP-INACTIVE state. Placing a Link in the **Disabled** administrative state makes the Link unavailable for SS7/Sigtran signaling.

Links must be disabled one Link at a time.

1. Select SS7/Sigtran>Maintenance > Links.
   
   The SS7/Sigtran>Maintenance > Links page appears.

2. Check the Pause updates box to stop the 15 second auto refresh for the page (lower right corner).
   
   It is unchecked by default.

3. Select the Link, then click Disable.

   If the Disable link is grayed out, the Link's administrative state is already **Disabled**. Also if collection on the server is not working, both the Enable and Disable links are active to give the user control when the status is unknown. The MP Server will simply disregard the command if the Link is already in the selected administrative state.

   A confirmation message appears.

4. Click **OK** to confirm.

   The Operational Status field shows Up. The Up/Down Since column now indicates when the Link transitioned into the Up status. The Enable action is now grayed out.
Chapter 5

Command Line Interface

Topics:
- Command Import elements.....98
- Validating commands.....98
- Command Validation Results.....99
- Command Validation Results elements.....102
- Executing commands.....102
- Command Execution Results.....103
- Command Execution Results elements.....106
- Command line interface import file.....107
- Managed objects.....109

The SS7/Sigtran > Command Line Interface > Command Import page provides a method for bulk loading SS7 configuration data. The SS7/Sigtran > Command Line Interface > Command Import page allows you to validate and execute command scripts. Validation and execution results are written to log files in the file management area.

The following types of data can be configured on the SS7/Sigtran > Command Line Interface > Command Import page:
- Adjacent Server Groups
- Local Signaling Points
- Remote Signaling Points
- Remote MTP3 Users
- Links
- Link Sets
- Routes
- Local SCCP Users
Command Import elements

Table 30: Command Import Elements describes the information on the SS7/Sigtran > Command Line Interface > Command Import page:

Table 30: Command Import Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command Script Location</td>
<td>A file selection field used to locate commands.</td>
<td>Format: Text box</td>
</tr>
<tr>
<td>Validate</td>
<td>Validates the command script when the user selects Submit.</td>
<td>Format: Radio button</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Validate is the default value.</td>
<td></td>
</tr>
<tr>
<td>Execute</td>
<td>Executes the command script when the user selects Submit.</td>
<td>Format: Radio button</td>
</tr>
<tr>
<td>Submit</td>
<td>Initiates either the validation or execution of the selected command script.</td>
<td>Format: Button</td>
</tr>
</tbody>
</table>

Validating commands

Use this procedure to validate commands.

Only the syntax of input commands is validated. For example, the validation function validates command format, verifies that the operation is supported for the managed object, and confirms that all required attributes are present. It does not validate field values.

2. Click Browse to select a file.
   The file browse dialog appears.
3. Select the file that you want to validate.
4. Click Open.
   The file appears in the green Info box at the top of the window.
5. Select the Validate option, then click Submit.
   The file is validated, the file name is displayed in the Info box as a link (for example MyScript.20100108_185530.txt) to the results file located in the file management area.
6. Click the link that appears in the Info box to view the Command Validation Results file.
   If the link is clicked immediately after submit, the validation may not be complete, and a partial file may be displayed.

**Note:** If you navigate away from the SS7/Sigtran > Command Line Interface > Command Import page, the link will no longer be available.
The Command Validation Results file opens.

An example Command Validation Results file is shown in Command Execution Results. The elements in the Command Validation Results file are described in Command Execution Results elements.

Command Validation Results

Results from command script validation are written to a TXT file. The naming convention of the file is `<filename>.<timestamp>.txt`, where `<filename>` is the name portion of the selected command script file and `<timestamp>` is the time in UTC that the results file was created.

```
Command Validation Results
=====================================================================================  
Report Generated: Fri Aug 06 17:20:18 2010 UTC
From: Active NETWORK_OAMP on host XGNO
Report Version: 3.0.0-3.0.0_30.5.0
User: guiadmin

Command Validation Details
08/06/2010 17:20:18:883 1 FAILED: INSERT: ADJSERVER: NENAME=Sig_OAM: NAME=AS_01:
  IPADDRESS=
08/06/2010 17:20:18:883 2 FAILED: INSERT: ADJSERVER: NENAME=Sig_OAM: NAME=AS_01:
  IPADDRESS=10.250.52.54
08/06/2010 17:20:18:884 4 FAILED: INSERT: ASGROUP: NENAME=Sig_OAM: NAME=ASG_01:
  ADJSERVERS=
08/06/2010 17:20:18:885 5 FAILED: INSERT: ASGROUP: NENAME=Sig_OAM: NAME=ASG_01:
  ADJSERVERS=AS_01
08/06/2010 17:20:18:886 7 FAILED: INSERT: LSP: NENAME=Sig_OAM: NAME=LSP_01:
  DOMAIN=ITUI: POINTCODE=1-1-1: SVRGROUPS=
08/06/2010 17:20:18:887 8 FAILED: INSERT: LSP: NENAME=Sig_OAM: NAME=LSP_01:
  DOMAIN=ITUI: POINTCODE=1-1-1: SVRGROUPS=SG_MP
08/06/2010 17:20:18:888 10 FAILED: INSERT: LSU: NENAME=Sig_OAM: POINTCODE=1-1-1:
  DOMAIN=ITUI: SSN=5: APPLICATION=
08/06/2010 17:20:18:889 11 SUCCESS: INSERT: LSU: NENAME=Sig_OAM: POINTCODE=1-1-1:
  DOMAIN=ITUI: SSN=5: APPLICATION=T CAP
```

E73345 Revision 02, March 2017 99
08/06/2010 17:20:18:909 41 FAILED: DELETE: ASSOCIATION: NAME=
08/06/2010 17:20:18:910 42 SUCCESS: DELETE: ASSOCIATION: NAME=AssocTest1: FORCE=1
08/06/2010 17:20:18:915 50 FAILED: DELETE: RSP: pointcode=6-6-6
08/06/2010 17:20:18:919 56 FAILED: DELETE: LSP: NAME=
08/06/2010 17:20:18:920 57 FAILED: DELETE: LSP: NAME=LSP_01
08/06/2010 17:20:18:922 60 FAILED: DELETE: ASGROUP: NAME=ASG_01
08/06/2010 17:20:18:924 63 FAILED: DELETE: ADJSERVER: NAME=AS_01
08/06/2010 17:20:18:924 63 ***ERROR*** [Error Code 10096] - Managed object not yet supported: adjserver

Command Validation Summary

Input File: cli_commands.txt
Number of Commands Executed: 43
Number of Commands Succeeded: 15
Number of Commands Failed: 28
Command Validation Results elements

Results from command script validation are written to a TXT file. *Table 31: Command Validation Results* describes the elements of the Command Validation Results file.

**Table 31: Command Validation Results**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command Validation Results</td>
<td>Displays the following information:</td>
</tr>
<tr>
<td></td>
<td>• Time the report was generated</td>
</tr>
<tr>
<td></td>
<td>• Server name</td>
</tr>
<tr>
<td></td>
<td>• Report version number</td>
</tr>
<tr>
<td></td>
<td>• User name</td>
</tr>
<tr>
<td>Command Validation Details</td>
<td>Output in the details section of the results file displays:</td>
</tr>
<tr>
<td></td>
<td>• UTC timestamp in millisecond format: MM/DD/YYYY hh:mm:ss:uuu</td>
</tr>
<tr>
<td></td>
<td>• Corresponding line number from the input file</td>
</tr>
<tr>
<td></td>
<td>• Command statements from the input file</td>
</tr>
<tr>
<td></td>
<td>• Successfully validated commands are preceded by: SUCCESS</td>
</tr>
<tr>
<td></td>
<td>• Failed commands are preceded by: FAILED</td>
</tr>
<tr>
<td></td>
<td>• Failed commands are followed by a line that begins: <em><strong>ERROR</strong></em></td>
</tr>
<tr>
<td></td>
<td>[Error Code &lt;number&gt;] - &lt;error code text&gt;</td>
</tr>
<tr>
<td></td>
<td>• Comments from the input file, if applicable</td>
</tr>
<tr>
<td></td>
<td>• Comments are preceded by: Comment</td>
</tr>
<tr>
<td>Command Validation Summary</td>
<td>Output in the summary section of the file displays:</td>
</tr>
<tr>
<td></td>
<td>• Name of the input file</td>
</tr>
<tr>
<td></td>
<td>• Number of commands validated</td>
</tr>
<tr>
<td></td>
<td>• Number of commands succeeded</td>
</tr>
<tr>
<td></td>
<td>• Number of commands failed</td>
</tr>
<tr>
<td></td>
<td>• If a fatal error occurs, the script is terminated, and the summary will</td>
</tr>
<tr>
<td></td>
<td>contain this message: <em><strong>SCRIPT ABORTED DUE TO ERROR</strong></em></td>
</tr>
</tbody>
</table>

Executing commands

Use this procedure to execute commands.
   The SS7/Sigtran > Command Line Interface > Command Import page appears.
2. Click Browse to select a file.
   The file browse dialog appears.
3. Select the file you want to execute.
4. Click Open.
   The file appears in the green Info box at the top of the window.
5. Select the Execute option, then click Submit.
   The file is executed, the file name is displayed in the Info box as a link (for example MyScript.20100108_185530.txt) to the results file located in the file management area.
6. Click the link that appears in the Info box to view the Command Execution Results file.
   If the link is clicked immediately after submit, the validation may not be complete, and a partial file may be displayed.

   **Note:** If you navigate away from the SS7/Sigtran > Command Line Interface > Command Import page, the link will no longer be available.

   The Command Execution Results file opens.
   An example Command Execution Results file is shown in **Command Execution Results**.
   The elements in the Command Execution Results file are described in **Command Execution Results elements**.

### Command Execution Results

Results from command script execution are written to a TXT file. The naming convention of the file is `<filename>.<timestamp>.txt`, where `<filename>` is the name portion of the selected command script file and `<timestamp>` is the time in UTC that the results file was created.

```
Command Execution Results
--------------------------------------------------------------------------------
Report Generated: Fri Aug 06 17:20:56 2010 UTC
From: Active NETWORK_OAMP on host XGNO
Report Version: 3.0.0-3.0.0_30.5.0
User: guiadmin

Command Execution Details
```

E73345 Revision 02, March 2017 103
08/06/2010 17:20:57:559 13 FAILED: INSERT: RSP: name=STP_01: pointcode=6-6-6: domain=
08/06/2010 17:20:57:560 15 FAILED: INSERT: RSP: name=STP_01: pointcode=6-6-6: domain=itui: asgroup=AdjServGrp1
08/06/2010 17:20:57:561 20 FAILED: INSERT: LINKSET: NENAME=Sig_OAM: NAME=LS_01: LSP=ITUI_1_001_1: POINTCODE
08/06/2010 17:20:57:582 29 FAILED: INSERT: ROUTE: NENAME=Sig_OAM:
Command Line Interface

POINTCODE=6-006-6: DOMAIN=ITUI: LINKSET=LS_01: RELCOST=5

08/06/2010 17:20:57:705 30 SUCCESS: INSERT: ROUTE: NENAME=Sig_OAM:
POINTCODE=6-6-6: DOMAIN=ITUI: LINKSET=LS_01: RELCOST=10


08/06/2010 17:20:57:729 33 SUCCESS: EDIT: ROUTE: NENAME=Sig_OAM:
POINTCODE=6-006-6: DOMAIN=ITUI: LINKSET=LS_01: RELCOST=10


08/06/2010 17:20:57:735 36 SUCCESS: DELETE: ROUTE: POINTCODE=6-006-6: DOMAIN=ITUI:
LINKSET=LS_01

08/06/2010 17:20:57:737 38 FAILED: DELETE: LINK: NAME=Link1:
POINTCODE=6-006-6: DOMAIN=ITUI: LINKSET=LS_01: RELCOST=5


08/06/2010 17:20:57:750 39 SUCCESS: DELETE: LINK: NAME=Link1:
FORCE=1

08/06/2010 17:20:57:752 41 FAILED: DELETE: ASSOCIATION: NAME=AssocTest1:
POINTCODE=6-006-6: DOMAIN=ITUI: LINKSET=LS_01: RELCOST=5


08/06/2010 17:20:57:765 42 SUCCESS: DELETE: ASSOCIATION: NAME=AssocTest1:
FORCE=1

08/06/2010 17:20:57:767 44 FAILED: DELETE: LINKSET: NAME=LS_01:
POINTCODE=6-006-6: DOMAIN=ITUI: LINKSET=LS_01: RELCOST=5


08/06/2010 17:20:57:783 47 FAILED: DELETE: RMU: POINTCODE=6-006-6: DOMAIN=ITUI:
SSN=5


08/06/2010 17:20:57:797 48 SUCCESS: DELETE: RMU: POINTCODE=6-6-6: DOMAIN=ITUI:
SSN=5

08/06/2010 17:20:57:799 50 FAILED: DELETE: RSP: pointcode=6-6-6:

Ssn=


08/06/2010 17:20:57:828 54 SUCCESS: Delete: Lsu: Pointcode=1-1-1: Domain=ITUI:
Ssn=5: Force=1

08/06/2010 17:20:57:831 56 FAILED: DELETE: LSP: NAME=LSP_01


Figure 14: Example of Command Execution Results file

Command Execution Results elements

Results from command script execution are written to a TXT file. Table 32: Command Execution Results describes the elements of the Command Execution Results file.

Table 32: Command Execution Results

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command Execution</td>
<td>Displays the following information:</td>
</tr>
<tr>
<td>Results</td>
<td>• Time the report was generated</td>
</tr>
<tr>
<td></td>
<td>• Server name</td>
</tr>
<tr>
<td></td>
<td>• Report version number</td>
</tr>
<tr>
<td></td>
<td>• User name</td>
</tr>
<tr>
<td>Command Execution</td>
<td>Output in the details section of the results file displays:</td>
</tr>
<tr>
<td>Details</td>
<td>• UTC timestamp in millisecond format: MM/DD/YYYY hh:mm:ss:uuu</td>
</tr>
<tr>
<td></td>
<td>• Corresponding line number from the input file</td>
</tr>
<tr>
<td></td>
<td>• Command statements from the input file</td>
</tr>
<tr>
<td></td>
<td>• Successfully executed commands are preceded by: SUCCESS</td>
</tr>
<tr>
<td></td>
<td>• Failed commands are preceded by: FAILED</td>
</tr>
<tr>
<td></td>
<td>• Failed commands are followed by a line that begins with: <em><strong>ERROR</strong></em></td>
</tr>
<tr>
<td></td>
<td>[Error Code &lt;number&gt;] - &lt;error code text&gt;</td>
</tr>
<tr>
<td></td>
<td>• Comments from the input file, if applicable</td>
</tr>
</tbody>
</table>
### Command Line Interface

#### Command line interface import file

The CLI (Command Line Interface) import file enables you to create command scripts to insert, delete, and edit SS7 data. Using an import file facilitates the provisioning of large amounts of data. It also provides a convenient method for configuring data that is common to multiple sites.

#### CLI command structure

CLI commands are formatted as follows:

\[
<\text{operation}>: <\text{managed object}>: <\text{attribute}>=<\text{value}>
\]

Commands can contain multiple attribute value pairs. The format for commands that contain multiple attribute value pairs is:

\[
<\text{operation}>: <\text{managed object}>: <\text{attribute}>=<\text{value}>: <\text{attribute}>=<\text{value}>
\]

#### Table 33: CLI Command Values

<table>
<thead>
<tr>
<th>Element</th>
<th>Valid Values</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>• insert</td>
<td>Operation names are not case-sensitive.</td>
</tr>
<tr>
<td></td>
<td>• edit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• delete</td>
<td></td>
</tr>
<tr>
<td>Managed object</td>
<td>• rsp</td>
<td>Managed object names are not case-sensitive.</td>
</tr>
<tr>
<td></td>
<td>• rmu</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• association</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• linkset</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• link</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• route</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• lsu</td>
<td></td>
</tr>
<tr>
<td>Attributes</td>
<td>Attributes are specific to the commands. Some attributes are</td>
<td>Attribute names are not case-sensitive.</td>
</tr>
</tbody>
</table>
### Data Input Notes

<table>
<thead>
<tr>
<th>Element</th>
<th>Valid Values</th>
<th>Data Input Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>required; others</td>
<td>For more information, see:</td>
<td></td>
</tr>
</tbody>
</table>
| others are optional. For more information, see: | • Remote Signaling Points  
• Remote MTP3 Users  
• Link Sets  
• Links  
• Routes  
• Local SCCP Users | Attribute values are case-sensitive.                                    |

### Value

For more information about attribute values, see:

• Remote Signaling Point elements  
• Remote MTP3 Users elements  
• Link Sets elements  
• Links elements  
• Routes elements  
• Local SCCP Users elements

### CLI File format

The following rules apply to the format of command script files:

- One command is allowed per line.
- Command lines that begin with the pound sign (#) are treated as comments. Comments are included in the results file, and they are counted, but are not validated or executed.
- Blank lines are skipped.

### Sample command scripts

**Figure 15: Insert commands**

```
insert: rmu: pointcode=003-003-003: domain=ansi: ssn=5
insert: rmu: pointcode=004-004-004: domain=ansi: ssn=6
# This is a sample script that demonstrates how to use insert
```

**Figure 16: Delete commands**

```
delete: rsp: pointcode=100-1-1: domain=ansi
delete: rsp: pointcode=100-1-2: domain=ansi
# This is a sample script that demonstrates how to use delete
```

```
edit: Route: Pointcode=001-001-001: Domain=Ansi: Linkset=LS1: Relcost=10
edit: Route: Pointcode=001-001-002: Domain=Ansi: Linkset=LS1: Relcost=5
```
Managed objects

Command Import supports the following managed objects:

- asg
- lsp
- rsp
- rmu
- linkset
- link
- route
- lsu

Adjacent Server Groups

Managed object

asg

GUI Page updated

SS7/Sigtran -> Configuration -> Adjacent Server Groups page.

Allowed operations

*Table 34: CLI ASG Allowed Operations* shows the operations allowed on the SS7/Sigtran -> Configuration -> Adjacent Server Groups page. The operations are not case-sensitive.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds an ASG to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes an ASG from the configuration.</td>
</tr>
<tr>
<td>Edit</td>
<td>Allows modification of an existing ASG.</td>
</tr>
</tbody>
</table>

Required attributes

*Table 35: CLI ASG Required Attributes* lists the required attributes for the asg managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Adjacent Server Groups page. The attribute values are case-sensitive.
Note: *Adjacent Server Groups elements* provide valid attribute values.

Table 35: CLI ASG Required Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Adjacent Server Group Identifier</td>
<td>Insert</td>
<td>Unique identifier used to label an Adjacent Server Group.</td>
</tr>
<tr>
<td>adjservers</td>
<td>Adjacent Server Group Member(s)</td>
<td>Insert</td>
<td>The list of Adjacent Servers that make up the Adjacent Server Group.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This field contains a comma-separated list of Adjacent Servers.</td>
</tr>
</tbody>
</table>

Optional attribute

*Table 36: CLI ASG Optional Attribute* lists an optional attribute for the *asg* managed object. The table maps the command attribute to its corresponding field name on the **SS7/Sigtran -> Configuration -> Adjacent Server Groups** page. The attribute value is case-sensitive.

Note: *Adjacent Server Groups elements* provide valid attribute values.

Table 36: CLI ASG Optional Attribute

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>nename</td>
<td>Signaling Network Element Name</td>
<td>Insert</td>
</tr>
</tbody>
</table>

Samples

To insert Adjacent Server Group ASG_01 on Signaling NE Sig_OAM with Adjacent Servers AS_0, use any of the following commands.

```plaintext
insert: asgroup: nename=Sig_OAM: name=ASG_01: adjservers=AS_0, as1
Insert: Insert: AsGroup: NeName=Sig_OAM: Name=ASG_01: AdjServers=AS_0, as1
INSERT: INSERT: ASGROUP: NENAME=Sig_OAM: NAME=ASG_01: ADJSERVERS=AS_0, as1
```

To delete Adjacent Server Group ASG_01, use any of the following commands:

```plaintext
delete: asgroup: name=ASG_01
Delete: Asgroup: Name=ASG_01
DELETE: ASGROUP: NAME=ASG_01
```

Note: All Values for field name are case-sensitive. For example, the following commands will add two different Adjacent Server Groups:

```plaintext
insert: asgroup: nename=Sig_OAM: name=ASG_01:adjservers=AS_0, as1
insert: asgroup: nename=Sig_OAM: name=Asg_01: adjservers=AS_1
```
Local Signaling Points

Managed object

1sp

GUI Page updated

SS7/Sigtran -> Configuration -> Local Signaling Points page.

Allowed operations

Table 37: CLI LSP Allowed Operations shows the operations allowed on the SS7/Sigtran -> Configuration -> Local Signaling Points page. The operations are not case-sensitive.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds an LSP to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes an LSP from the configuration.</td>
</tr>
<tr>
<td>Edit</td>
<td>Allows modification of an existing LSP.</td>
</tr>
</tbody>
</table>

Required attributes

Table 38: CLI LSP Required Attributes lists the required attributes for the 1sp managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Local Signaling Points page. The operations are not case-sensitive.

Note: Local Signaling Points elements provide valid attribute values.

Table 38: CLI LSP Required Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>pointcode</td>
<td>MTP Code</td>
<td>Insert</td>
<td>The MTP point code that identifies this Local Signaling Point. Only one LSP can have this MTP True Point Code.</td>
</tr>
<tr>
<td>domain</td>
<td>SS7 Domain</td>
<td>Insert</td>
<td>The SS7 domain in which the Node resides.</td>
</tr>
<tr>
<td>svrgroups</td>
<td>Server Group(s)</td>
<td>Insert</td>
<td>Server Group(s) that serve this Local Signaling Point. For multiple Server Groups, this field contains a comma-separated list of Server Groups. Each Server Group can host an lsp of each of the three domains - ANSI, ITUI and ITUN.</td>
</tr>
</tbody>
</table>
Optional attribute

*Table 39: CLI LSP Optional Attribute* lists an optional attribute for the `lsp` managed object. The table maps the command attribute to its corresponding field name on the **SS7/Sigtran -> Configuration -> Local Signaling Points** page. The attribute values are case-sensitive.

**Note:** *Local Signaling Points elements* provide valid attribute values.

**Table 39: CLI LSP Optional Attribute**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>netname</td>
<td>Signaling Network Element Name</td>
<td>Insert</td>
</tr>
<tr>
<td>cpc</td>
<td>MTP Capability Point Code(s)</td>
<td>Insert</td>
</tr>
<tr>
<td>cpc2</td>
<td>MTP Capability Point Code(s)</td>
<td>Insert</td>
</tr>
<tr>
<td>name</td>
<td>Local Signaling Point Name</td>
<td>Insert</td>
</tr>
</tbody>
</table>

**Samples**

To insert Local Signaling Point with pointcode as 001-001-001 in ANSI domain and auto generated LSP Name for Signaling NE Sig_OAM, use any of the following commands. The LSP Name added would be: ANSI_001_001_001

```
insert: lsp: nename=Sig_OAM: domain=ANSI: pointcode=001-001-001: svrgroups=SG_MP
Insert: Lsp: NeName=Sig_OAM: Domain=ANSI: Pointcode=001-001-001: Svrgroups=SG_MP
INSERT: LSP: NENAME=Sig_OAM: DOMAIN=ANSI: POINTCODE=001-001-001: SVRGROUPS=SG_MP
```

To insert Local Signaling Point LSP_01 with pointcode as 001-001-001 in ANSI domain for Signaling NE Sig_OAM, use any of the following commands:

```
insert: lsp: nename=Sig_OAM: name=LSP_01: domain=ANSI: pointcode=001-001-001: svrgroups=SG_MP
Insert: Lsp: NeName=Sig_OAM: Name=LSP_01: Domain=ANSI: Pointcode=001-001-001: Svrgroups=SG_MP
INSERT: LSP: NENAME=Sig_OAM: NAME=LSP_01: DOMAIN=ANSI: POINTCODE=001-001-001: SVRGROUPS=SG_MP
```

To delete Local Signaling Point LSP_01, use any of the following commands:

```
delete: lsp: name=LSP_01
Delete: Lsp: Name=LSP_01
DELETE: LSP: NAME=LSP_01
```

**Note:** All Values for field name are case-sensitive. For example, the following commands will add two different Local Signaling Points:

```
insert: lsp: nename=Sig_OAM: name=LSP_01: domain=ANSI: pointcode=001-001-001: servergroups=SG_MP
```
Remote Signaling Points

Managed object

rsp

GUI Page updated

SS7/Sigtran -> Configuration -> Remote Signaling Points page.

Allowed operations

Table 40: CLI RSP Allowed Configuration Operations shows the operations allowed on the SS7/Sigtran -> Configuration -> Remote Signaling Points page. The operations are not case-sensitive.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds an RSP to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes an RSP from the configuration.</td>
</tr>
<tr>
<td>Edit</td>
<td>Allows modification of an existing RSP.</td>
</tr>
</tbody>
</table>

Table 41: CLI RSP Allowed Maintenance Operation shows the operation allowed on the SS7/Sigtran -> Maintenance -> Remote Signaling Points page. The operation is not case-sensitive.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset</td>
<td>Resets the MP's view of the network status of both routes to Available.</td>
</tr>
</tbody>
</table>

Required attributes

Table 42: CLI RSP Required Attributes lists the required attributes for the rsp managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Remote Signaling Points page. The attribute values are case-sensitive.

Note: Remote Signaling Point elements provide valid attribute values.
Table 42: CLI RSP Required Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>pointcode</td>
<td>MTP Point Code</td>
<td>• Insert</td>
<td>Point codes are normalized based on the specified SS7 domain. Some examples follow:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delete</td>
<td>• ANSI point code 1-1-1 becomes 001-001-001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• ITU-I point code 1-1-1 becomes 1-001-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• ITU-N point code 00001 becomes 1 and ITU-N point code 000 becomes 0</td>
</tr>
<tr>
<td>domain</td>
<td>SS7 Domain</td>
<td>• Insert</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delete</td>
<td></td>
</tr>
</tbody>
</table>

Optional attribute

Table 43: CLI RSP Optional Attribute lists an optional attribute for the rsp managed object. The table maps the command attribute to its corresponding field name on the SS7/Sigtran -> Configuration -> Remote Signaling Points page. The attribute values are case-sensitive.

Note: Remote Signaling Point elements provide valid attribute values.

Table 43: CLI RSP Optional Attribute

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Remote Signaling Point Name</td>
<td>Insert</td>
</tr>
<tr>
<td>asgroup</td>
<td>Adjacent Server Group</td>
<td>Insert</td>
</tr>
</tbody>
</table>

Samples

To insert RSP STP_01 with pointcode 100-1-1 for the ANSI Domain with the Adjacent Server Group as asg1, use any of the following commands:

```
insert: rsp: pointcode=100-1-1: domain=ansi: asgroup=asg1
Insert: RSP: pointcode=100-1-1: domain=ansi: asgroup=asg1
INSERT: RSP: name=STP_01: pointcode=100-1-1: domain=ansi: asgroup=asg1
```

To delete RSP STP_01, use any of the following commands:

```
delete: rsp: pointcode=100-1-1: domain=ansi
Delete: RSP: pointcode=100-1-1: domain=ansi
DELETE: RSP: pointcode=100-1-1: domain=ansi
```
Remote MTP3 Users

Managed object
rmu

GUI Page updated
SS7/Sigtran -> Configuration -> Remote MTP3 Users page.

Allowed operations
Table 44: CLI RMU Allowed Configuration operations shows the operations allowed on the SS7/Sigtran -> Configuration -> Remote MTP3 Users page. The operations are not case-sensitive.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds an RMU to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes an RMU from the configuration.</td>
</tr>
</tbody>
</table>

Table 45: CLI RMU Allowed Maintenance Operation shows the operation allowed on the SS7/Sigtran -> Maintenance -> Remote MTP3 Users page. The operation is not case-sensitive.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset</td>
<td>Resets the MP’s view of the remote subsystem.</td>
</tr>
</tbody>
</table>

Required attributes
Table 46: CLI RMU Required attributes lists the required attributes for the rmu managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Remote MTP3 Users page. The attribute values are case-sensitive.

Note: Remote MTP3 Users elements provide valid attribute values.

Table 46: CLI RMU Required attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>domain</td>
<td>SS7 Domain</td>
<td>• Insert</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delete</td>
<td></td>
</tr>
<tr>
<td>pointcode</td>
<td>Remote Point Code</td>
<td>• Insert</td>
<td>Point codes are normalized based on the specified SS7 domain. Some examples follow:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delete</td>
<td>• ANSI point code 1-1-1 becomes 001-001-001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• ITU-I point code 1-1-1 becomes 1-001-1</td>
</tr>
</tbody>
</table>
### Optional attributes

*Table 47: CLI RMU Optional Attribute* lists the optional attributes for the rmu managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Remote MTP3 Users page. The attribute value is case-sensitive.

**Note:** Remote MTP3 Users elements provide valid attribute values.

**Table 47: CLI RMU Optional Attribute**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Remote MTP3 User Name</td>
<td>Insert</td>
<td>CLI ignores leading zeros, for example: 001 = 01 = 1</td>
</tr>
</tbody>
</table>

**Samples**

To insert an RMU named RMU_01 with a point code of 3-3-3, the domain as ANSI, and an SSN of 5, use any of use any of these commands:

```plaintext
insert: rmu: pointcode=003-003-003: domain=ansi: ssn=5
Insert: RMU: Pointcode=3-3-3: Domain=ansi: Ssn=5
INSERT: RMU: NAME=RMU_01: POINTCODE=003-003-003: DOMAIN=ANSI: SSN=5
```

To delete the RMU RMU_01, use any of the following commands:

```plaintext
delete: rmu: pointcode=003-003-003: domain=ansi: ssn=5
Delete: RMU: Pointcode=3-3-3: Domain=ansi: Ssn=5
DELETE: RMU: POINTCODE=003-003-003: DOMAIN=ANSI: SSN=5
```

### Link Sets

**Managed object**

linkset

**GUI page updated**

SS7/Sigtran -> Configuration -> Link Sets page.
Allowed operations

Table 48: CLI Link Sets Allowed operations shows the operations allowed on the SS7/Sigtran -> Configuration -> Link Sets page. The operations are not case-sensitive.

Table 48: CLI Link Sets Allowed operations

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds a Link Set to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes a Link Set from the configuration.</td>
</tr>
</tbody>
</table>

Required attributes

Table 49: CLI Link Sets Required Attributes lists the required attributes for the linkset managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Link Sets page. The attribute values are case-sensitive.

Note: Link Sets elements provide valid attribute values.

Table 49: CLI Link Sets Required Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Link Set Name</td>
<td>• Insert</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delete</td>
<td></td>
</tr>
<tr>
<td>lsp</td>
<td>Local Signaling Point</td>
<td>Insert</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pointcode</td>
<td>Adjacent Remote Point</td>
<td></td>
<td>Point codes are normalized based on the specified SS7 domain. Some examples follow:</td>
</tr>
<tr>
<td></td>
<td>Code</td>
<td>Insert</td>
<td>• ANSI point code 1-1-1 becomes 001-001-001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• ITU-I point code 1-1-1 becomes 1-001-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• ITU-N point code 00001 becomes 1 and ITU-N point code 000 becomes 0</td>
</tr>
<tr>
<td>domain</td>
<td>SS7 domain</td>
<td>Insert</td>
<td>Not applicable</td>
</tr>
<tr>
<td>assignrc</td>
<td>Assign Routing Context</td>
<td>Insert</td>
<td>If assignrc = yes, and the optional routingcontext attribute is not specified, then the default value of routingcontext prevails (the first unused integer value greater than zero).</td>
</tr>
</tbody>
</table>

Optional attributes

Table 50: CLI Link Sets Optional Attributes lists the optional attributes for the linkset managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Link Sets page. The attribute values are case-sensitive.

Note: Link Sets elements provide valid attribute values.
## Table 50: CLI Link Sets Optional Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>nename</td>
<td>Signaling Network Element Name</td>
<td>Insert</td>
<td>On SS7 applications where configuration is performed from the SOAM, this parameter is optional.</td>
</tr>
<tr>
<td>routingcontext</td>
<td>Routing Context</td>
<td>Insert</td>
<td>The following rules are applicable for routing context. The attribute value is not case-sensitive:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If you do not want a routing context to be assigned, specify <strong>No</strong> for the <code>assignrc</code> field. If the <code>routingcontext</code> attribute is specified and <code>assignrc=no</code>, then the routing context is ignored:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>insert: linkset: nename=sig_oam: name=LS_01: lsp=LSP_01: pointcode=003-003-003: domain=ansi: assignrc=NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>insert: linkset: nename=sig_oam: name=LS_01: lsp=LSP_01: pointcode=3-3-3: domain=ansi: assignrc=no: routingcontext=55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• To specify the default routing context as the first unused integer value greater than zero, specify <code>assignrc=yes</code>, but do not specify <code>routingcontext</code>:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>insert: linkset: nename=sig_oam: name=LS_01: lsp=LSP_01: pointcode=3-3-3: domain=ansi: assignrc=YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• To define the routing context, specify <code>assignrc=yes</code> and specify a value for <code>routingcontext</code>:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>insert: linkset: nename=sig_oam: name=LS_01: lsp=LSP_01: pointcode=003-003-003: domain=ansi:assignrc=YES: routingcontext=1000</td>
</tr>
</tbody>
</table>

### Samples

To insert Linkset LS_01 with the LSP as LSP_01 and the adjacent point code as 003-003-003 with no routing context, use any of the following commands:

```
insert: linkset: nename=sig_oam: name=LS_01: lsp=LSP_01: pointcode=3-3-3: domain=ansi: assignrc=no
```
To delete Link Set LS_01, use any of the following commands:

```
delete: linkset: name=LS_01
Delete: Linkset: Name=LS_01
DELETE: LINKSET: NAME=LS_01
```

All attribute values are case sensitive. The following commands add two different Link Sets:

```
insert: linkset: name=LS_01: lsp=LSP_01: pointcode=003-003-003: domain=ansi: assignrc=no
insert: linkset: name=ls_01: lsp=LSP_01: pointcode=003-003-002: domain=ansi: assignrc=no
```

## Links

**Managed object**

`link`

**GUI page updated**

SS7/Sigtran -> Configuration -> Links page.

**Allowed operations**

*Table 51: CLI Links Allowed Configuration operations* shows the operations allowed on the SS7/Sigtran -> Configuration -> Links page. The operations are not case-sensitive.

**Table 51: CLI Links Allowed Configuration operations**

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds a Link to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes a Link from the configuration.</td>
</tr>
</tbody>
</table>

*Table 52: CLI Links Allowed Maintenance Operations* shows the operations allowed on the SS7/Sigtran -> Maintenance -> Links page. The operations are not case-sensitive.

**Table 52: CLI Links Allowed Maintenance Operations**

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable</td>
<td>Enables a Link to the system.</td>
</tr>
</tbody>
</table>
Operation | Description
--- | ---
Disable | Disables a Link in the system.

**Required attributes**

*Table 53: CLI Links Required Attributes* lists the required attributes for the link managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Links page. The attribute values are case-sensitive.

**Note:** Links elements provide valid attribute values.

**Table 53: CLI Links Required Attributes**

<table>
<thead>
<tr>
<th>Attributes Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Link Name</td>
<td>• Insert</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delete</td>
</tr>
<tr>
<td>linkset</td>
<td>Link Set</td>
<td>Insert</td>
</tr>
<tr>
<td>association</td>
<td>Association</td>
<td>Insert</td>
</tr>
</tbody>
</table>

**Optional attributes**

*Table 54: CLI Links Optional Attributes* lists the optional attributes for the link managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Links page. The attribute values are case-sensitive.

**Note:** Links elements provide valid attribute values.

**Table 54: CLI Links Optional Attributes**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>nename</td>
<td>Signaling Network Element Name</td>
<td>Insert</td>
<td>On SS7 applications where configuration is performed from the SOAM, this parameter is optional.</td>
</tr>
<tr>
<td>force</td>
<td>Not applicable</td>
<td>Delete</td>
<td>The only valid value is force=1. The attribute is used to force the delete operation for an association, irrespective of its Admin State.</td>
</tr>
</tbody>
</table>

**Samples**

To insert a Link named Link1 with a Link Set of LS1 and an association of Assoc1 on Signaling Network Element NE_01, use any of the following commands:

```
insert: link: nename=NE_01: name=Link1: linkset=LS1: association=Assoc1
Insert: Link: NeName=NE_01: Name=Link1: Linkset=LS1: Association=Assoc1
INSERT: LINK: NENAME=NE_01: NAME=Link1: LINKSET=LS1: ASSOCIATION=Assoc1
```
To delete the Link, Link1, use any of the following commands:

```plaintext
delete: link: name=Link1
Delete: Link: Name=Link1
DELETE: LINK: NAME=Link1
DELETE: LINK: NAME=Link1: FORCE=1
```

All attribute values are case sensitive. The following commands add two different Links:

```plaintext
insert: link: nename=NE_01: name=Link1: linkset=LS1: association=Assoc1
insert: link: nename=NE_01: name=LINK1: linkset=LS2: association=Assoc1
```

Routes

**Managed object**

`route`

**GUI Page updated**

SS7/Sigtran -> Configuration -> Routes page.

**Allowed operations**

*Table 55: CLI Routes Allowed Operations* shows the operations allowed on the SS7/Sigtran -> Configuration -> Routes page. The operations are not case-sensitive.

**Table 55: CLI Routes Allowed Operations**

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds a Route to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes a Route from the configuration.</td>
</tr>
<tr>
<td>Edit</td>
<td>Allows modification of the Route Cost for an existing Route.</td>
</tr>
</tbody>
</table>

**Required attributes**

*Table 56: CLI Routes Required Attributes* lists the required attributes for the `route` managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Routes page. The attribute values are case-sensitive.

**Note:** *Routes elements* provide valid attribute values.
Table 56: CLI Routes Required Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>pointcode</td>
<td>Remote Point Code</td>
<td>• Insert</td>
<td>Point codes are normalized based on the specified SS7 domain. Some examples follow: • ANSI point code 1-1-1 becomes 001-001-001 • ITU-I point code 1-1-1 becomes 1-001-1 • ITU-N point code 00001 becomes 1 and ITU-N point code 000 becomes 0</td>
</tr>
<tr>
<td>domain</td>
<td>SS7 Domain</td>
<td>• Insert</td>
<td>Not applicable</td>
</tr>
<tr>
<td>linkset</td>
<td>Link Set</td>
<td>• Insert</td>
<td>Not applicable</td>
</tr>
<tr>
<td>relcost</td>
<td>Relative Cost</td>
<td>• Insert</td>
<td>CLI ignores leading zeros, for example: 001 = 01 = 1</td>
</tr>
</tbody>
</table>

Optional attributes

Table 57: CLI Routes Optional Attributes lists the optional attributes for the route managed object. The table maps the command attributes to their corresponding field names on the SS7/Sigtran -> Configuration -> Routes page. The attribute values are case-sensitive.

Note: Routes elements provide valid attribute values.

Table 57: CLI Routes Optional Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>nename</td>
<td>Signaling Network Element Name</td>
<td>Insert</td>
<td>In the MD-IWF SS7 Application, where configuration is performed from the SOAM, this parameter is optional.</td>
</tr>
<tr>
<td>name</td>
<td>Route Name</td>
<td>Insert</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Samples

To insert a Route with a point code of 1-1-1, the domain as ANSI, and a relative cost of 5, use any of the following commands:

```
```
Local SCCP Users

Managed object

lsu

GUI page updated

SS7/Sigtran -> Configuration -> Local SCCP Users page.

Allowed operations

Table 58: CLI LSU Allowed Configuration Operations shows the operations allowed on the SS7/Sigtran -> Configuration -> Local SCCP Users page. The operations are not case-sensitive.

Table 58: CLI LSU Allowed Configuration Operations

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Adds an LSU to the configuration.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes an LSU from the configuration.</td>
</tr>
</tbody>
</table>

Table 52: CLI Links Allowed Maintenance Operations shows the operations allowed on the SS7/Sigtran -> Maintenance -> Local SCCP Users page. The operations are not case-sensitive.

Table 59: CLI LSU Allowed Maintenance Operations

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable</td>
<td>Enables an LSU to the system.</td>
</tr>
</tbody>
</table>
**Operation** | **Description**
---|---
Disable | Disables an LSU to the system.

**Required attributes**

*Table 60: CLI LSU Required Attributes* lists the required attributes for the `lsu` managed object. The table maps the command attributes to their corresponding field names on the **SS7/Sigtran -> Configuration -> Local SCCP Users** page. The attribute values are case-sensitive.

**Note:** *Local SCCP Users elements* provide valid attribute values.

<table>
<thead>
<tr>
<th>Attributes Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>pointcode</td>
<td>Local Signaling Point</td>
<td>• Insert • Delete</td>
<td>Point codes are normalized based on the specified SS7 domain. Some examples follow: • ANSI point code 1-1-1 becomes 001-001-001 • ITU-I point code 1-1-1 becomes 1-001-1 • ITU-N point code 00001 becomes 1 and ITU-N point code 000 becomes 0</td>
</tr>
<tr>
<td>domain</td>
<td>SS7 Domain</td>
<td>• Insert • Delete</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ssn</td>
<td>SSN</td>
<td>• Insert • Delete</td>
<td>Not applicable</td>
</tr>
<tr>
<td>application</td>
<td>Application Name</td>
<td>Insert</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Optional attributes**

*Table 61: CLI LSU Optional Attributes* lists the optional attributes for the `lsu` managed object. The table maps the command attributes to their corresponding field names on the **SS7/Sigtran -> Configuration -> Local SCCP Users** page. The attribute values are case-sensitive.

**Note:** *Local SCCP Users elements* provide valid attribute values.

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>GUI Field Name</th>
<th>For Operation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>nename</td>
<td>Signaling Network Element Name</td>
<td>Insert</td>
<td>In the MD-IWF SS7 Application, where configuration is performed from the SOAM, this parameter is optional.</td>
</tr>
<tr>
<td>force</td>
<td>Not applicable.</td>
<td>Delete</td>
<td>The only valid value is <code>force=1</code>. The attribute is used to force the delete operation for an association, irrespective of its Admin State.</td>
</tr>
</tbody>
</table>
**Samples**

To insert an LSU with a point code of 1-1-1, the domain as ANSI, and an SSN of 5, use any of the following commands:

```
insert: lsu: nename=NO_01: pointcode=1-1-1: domain=ansi: ssn=5:
application=LocalSCCPUser
Insert: Lsu: NeName=NO_01: Pointcode=001-001-001: Domain=Ansi: Ssn=5:
Application=LocalSCCPUser
INSERT: LSU: NENAME=NO_01: POINTCODE=001-001-001: DOMAIN=ANSI: SSN=5:
APPLICATION=LocalSCCPUser
```

To delete an LSU with a point code of 1-1-1, the domain as ANSI, and an SSN of 5, use any of the following commands:

```
delete: lsu: pointcode=1-1-1: domain=ansi: ssn=5
Delete: Lsu: Pointcode=001-001-001: Domain=Ansi: Ssn=5: Force=1
DELETE: LSU: POINTCODE=001-001-001: DOMAIN=ANSI: SSN=5
```
<table>
<thead>
<tr>
<th>A</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adjacent Server</strong></td>
<td>A server acting as a signaling peer for M3UA signaling. An Adjacent Server connects to one or more MP Servers using reliable IP transport sessions, such as SCTP associations. Only adjacent Remote Signaling Points and adjacent Remote MTP3 Users are hosted on Adjacent Servers.</td>
</tr>
<tr>
<td><strong>Adjacent Server Group</strong></td>
<td>A collection of Adjacent Servers that implements a distributed IP signaling function. The group represents a set of Adjacent Servers that share a point code on the signaling gateway. An Adjacent Server Group has a name and a list of Adjacent Servers.</td>
</tr>
</tbody>
</table>
| **ANSI** | American National Standards Institute  
An organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI develops and publishes standards. ANSI is a non-commercial, non-government organization which is funded by more than 1000 corporations, professional bodies, and enterprises. |
| **AVP** | Attribute-Value Pair  
The Diameter protocol consists of a header followed by one or more attribute-value pairs (AVPs). An AVP includes a header and is used to encapsulate protocol-specific |
**Glossary**

<table>
<thead>
<tr>
<th>A</th>
<th>data (for example, routing information) as well as authentication, authorization or accounting information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>CLI</td>
</tr>
<tr>
<td>CPC</td>
<td>Capability Point Code</td>
</tr>
<tr>
<td>CTF</td>
<td>Charging Trigger Function</td>
</tr>
<tr>
<td>D</td>
<td>DAUD</td>
</tr>
<tr>
<td>DAVA</td>
<td>Destination Available</td>
</tr>
<tr>
<td>DCA</td>
<td>DOIC Capabilities Announcement</td>
</tr>
<tr>
<td>DNS</td>
<td>Domain Name System</td>
</tr>
<tr>
<td>DRA</td>
<td>Diameter Relay Agent</td>
</tr>
<tr>
<td>DSCP</td>
<td>Differentiated Services Code Point</td>
</tr>
</tbody>
</table>
D

the code point contained in a field in the IP packet header to a particular forwarding treatment or per-hop behavior (PHB). Differentiated services or DiffServ is a computer networking architecture that specifies a simple, scalable and coarse-grained mechanism for classifying and managing network traffic and providing quality of service (QoS) on modern IP networks.

DUNA

Destination Unavailable

DUPU

Destination User Part Unavailable
An M3UA management message.

G

GLA

Gateway Location Application A DSR Application that provides a Diameter interface to subscriber data stored in the DSR’s Policy Session Binding Repository (pSBR). Subscriber data concerning binding and session information is populated in the pSBR-B by the Policy Diameter Routing Agent (Policy DRA). GLA provides methods for a Diameter node to query binding information stored in the pSBR-B. The query can be by either IMSI or MSISDN. GLA processes Diameter Requests and generates Diameter Answers.

GTA

Global Title Address

HA

High Availability refers to a system or component that operates on a continuous basis by utilizing
H

redundant connectivity, thereby circumventing unplanned outages.

I

IDIH
Integrated Diameter Intelligence Hub

IP
Intelligent Peripheral
Internet Protocol - IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.

ITU-I
ITU-International

ITU-N
ITU-National

ITU-N 24-bit Point Code
In the People's Republic of China (PRC), the national signalling network uses ITU-national procedures with 24-bit ITU national point codes (14-bit point codes are traditionally used in ITU national networks).

K

KPI
Key Performance Indicator

L

LDAP
Lightweight Directory Access Protocol
A protocol for providing and receiving directory information in a TCP/IP network.

**Link**

Signaling Link

Carries signaling within a Link Set using a specific Association. A Link can belong to only one Link Set and one Association. There is generally one Link per Association in a Link Set.

**LNP**

Local Number Portability

The ability of subscribers to switch local or wireless carriers and still retain the same phone number.

**Local Signaling Point**

See LSP.

**LSP**

Local Signaling Point

A logical element representing an SS7 Signaling Point. The Local Signaling Point assigns a unique primary/true point code within a particular SS7 Domain to an MP server.

**M3RL**

M3UA Routing Layer

A layer invented by Tekelec to enhance M3UA by adding a true routing layer.

**M3UA**

SS7 MTP3-User Adaptation Layer

M3UA enables an MTP3 User Part to be connected to a remote MTP3 via a reliable IP transport.
M

MAP
Mobile Application Part
An application part in SS7 signaling for mobile communications systems.

MD-IWF
MAP-Diameter Interworking SS7 Application, which translates MAP messages into Diameter messages

MEAL
Measurements, Events, Alarms, and Logs

MP
Message Processor - The role of the Message Processor is to provide the application messaging protocol interfaces and processing. However, these servers also have OAM components. All Message Processors replicate from their Signaling OAM's database and generate faults to a Fault Management System.

MSC
Mobile Switching Center
An intelligent switching system in GSM networks. This system establishes connections between mobile communications subscribers.
The primary service delivery node for GSM/CDMA, responsible for routing voice calls and SMS as well as other services (such as conference calls, FAX and circuit switched data).

MTP3
Message Transfer Part, Level 3

N

NAS
Network Access Server
A single point of access or gateway to a remote resource. NAS systems are usually associated with AAA servers.

Network Operations, Administration, and Maintenance

Network Operations, Administration, Maintenance, and Provisioning

A system allowing a Communications Service Provider to charge customers in real time based on service usage.

Policy and Charging Rules Function
The ability to dynamically control access, services, network capacity, and charges in a network.
Maintains rules regarding a subscriber’s use of network resources. Responds to CCR and AAR messages. Periodically sends RAR messages. All policy sessions for a given subscriber, originating anywhere in the network, must be processed by the same PCRF.
In the Policy Management system, PCRF is located in the MPE device.
Software node designated in real-time to determine policy rules in a multimedia network.

Protocol Data Unit
P

PRT
Peer Route Table or Peer Routing Table

R

RADIUS
Remote Authentication Dial-In User Service
A client/server protocol and associated software that enables remote access servers to communicate with a central server to authorize their access to the requested service. The MPE device functions with RADIUS servers to authenticate messages received from remote gateways. See also Diameter.

Remote MTP3 User
See RMU.

Remote Signaling Point
See RSP.

RMU
Remote MTP3 User
Represents a remote SCCP subsystem to which the Signaling Network Interface forwards signaling. When a message is forwarded from an MSC to an HLR, an RMU must be configured for the subsystem on the HLR.

Route
A signaling path from an LSP to an RSP using a specified Link Set.

RSP
Remote Signaling Point
Represents an SS7 network node (point code) that signaling must be sent to. An RSP has an SS7 domain (ANSI, ITUI, ITUN), a point code,
| **R** | and an optional Adjacent Server Group. |
| **S** | **SBR** | Session Binding Repository  
A highly available, distributed database for storing Diameter session binding data. |
| **SCCP** | Signaling Connection Control Part  
The signaling connection control part with additional functions for the Message Transfer Part (MTP) in SS7 signaling. Messages can be transmitted between arbitrary nodes in the signaling network using a connection-oriented or connectionless approach. |
| **SCCP Management (SCMG)** | The portion of the SCCP subsystem that performs network management functions for the SCCP subsystem such as, rerouting signaling traffic when network failures or congestion conditions occur. MTP network management informs SCCP of any changes in point code routing status. Changes in subsystem status are updated by using the subsystem allowed and subsystem prohibited procedures of SCCP management. SCCP management updates the status of point codes and subsystems. Also SCCP management broadcasts subsystem allowed and prohibited messages to concerned nodes. |
| **SCTP** | Stream Control Transmission Protocol |
S

SCTP

An IETF transport layer protocol, similar to TCP, that sends a message in one operation. The transport layer for all standard IETF-SIGTRAN protocols. SCTP is a reliable transport protocol that operates on top of a connectionless packet network such as IP and is functionally equivalent to TCP. It establishes a connection between two endpoints (called an association; in TCP, these are sockets) for transmission of user messages.

SFTP

SSH File Transfer Protocol (sometimes also called Secure File Transfer Protocol)

A client-server protocol that allows a user on one computer to transfer files to and from another computer over a TCP/IP network over any reliable data stream. It is typically used over version two of the SSH protocol.

SLS

Signaling Link Selector

SNMP


An industry-wide standard protocol used for network management. The SNMP agent maintains data variables that represent aspects of the network. These variables are called managed objects and are stored in a management information base (MIB). The SNMP protocol arranges managed objects into groups.
SOAM
System Operations, Administration, and Maintenance

SS7
Signaling System #7
A communications protocol that allows signaling points in a network to send messages to each other so that voice and data connections can be set up between these signaling points. These messages are sent over its own network and not over the revenue producing voice and data paths. The EAGLE is an STP, which is a device that routes these messages through the network.

STP
Spanning Tree Protocol

T

TFA
TransFer Allowed (Msg)

TFP
TransFer Prohibited (Msg)
A procedure included in the signaling route management (functionality) used to inform a signaling point of the unavailability of a signaling route.

TSA
Target Set Address
An externally routable IP address that the IPFE presents to application clients. The IPFE distributes traffic sent to a target set address across a set of application servers.

UDR
User Data Repository
### Glossary

#### U

**U**
A logical entity containing user data.

**UDT**
Unitdata Transfer

**UDTS**
Unitdata Transfer Service
An error response to a UDT message.

#### X

**XUDT**
Extended Unit Data

**XUDTS**
Extended Unitdata Service message
An error response to an XUDT message.