EAGLE® XG Diameter Signaling Router

Range Based Address Resolution (RBAR)

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Chapter 1

Introduction

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This chapter contains an overview of procedures to use to configure the RBAR application. The contents include sections on the scope, audience, and organization of the documentation, and how to contact Tekelec for assistance.

Overview

The Range Based Address Resolution (RBAR) document provides information about how to use the DSR GUI to configure the RBAR application.

The document provides procedures to configure:

- Applications
- Exceptions
- Destinations
- Address Tables
- Addresses
- Address Resolutions
- System Options

Scope and Audience

This *RBAR Help* is intended for anyone responsible for configuring and using the Range Based Address Resolution application. Users of this manual must have a working knowledge of telecommunications, network installations, and the Diameter Signaling Router (DSR).

Manual Organization

This document is organized into the following chapters:

- *Introduction* contains general information about the RBAR help documentation, the organization of this manual, and how to get technical assistance.
- *Range Based Address Resolution* describes the function of the RBAR application.
- *Configuration* describes how to configure the RBAR application, including Applications, Exceptions, Destinations, Address Tables, Addresses, Address Resolutions, and System Options.

Documentation Admonishments

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

Table 1: Admonishments

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

Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in the following locations:

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

  Phone:

  1-888-FOR-TKLC or 1-888-367-8552 (toll-free, within continental USA and Canada)

  1-919-460-2150 (outside continental USA and Canada)

  TAC Regional Support Office Hours:

  8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Caribbean and Latin America (CALA)**

  Phone:

  USA access code +1-800-658-5454, then 1-888-FOR-TKLC or 1-888-367-8552 (toll-free)

TAC Regional Support Office Hours (except Brazil):

10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

- **Argentina**

  Phone:

  0-800-555-5246 (toll-free)

- **Brazil**

  Phone:

  0-800-891-4341 (toll-free)

  TAC Regional Support Office Hours:

  8:00 a.m. through 5:48 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

  Phone:

  1230-020-555-5468

- **Colombia**

  Phone:

  01-800-912-0537

- **Dominican Republic**

  Phone:

  1-888-367-8552

- **Mexico**

  Phone:

  001-888-367-8552

- **Peru**

  Phone:

  0800-53-087

- **Puerto Rico**

  Phone:

  1-888-367-8552 (1-888-FOR-TKLC)

- **Venezuela**

  Phone:

  0800-176-6497

- **Europe, Middle East, and Africa**

  Regional Office Hours:

  8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays

  - **Signaling**

Phone:

+44 1784 467 804 (within UK)

- **Software Solutions**

  Phone:

  +33 3 89 33 54 00

- **Asia**
  - **India**

    Phone:

    +91 124 436 8552 or +91 124 436 8553

    TAC Regional Support Office Hours:

    10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays
  - **Singapore**

    Phone:

    +65 6796 2288

    TAC Regional Support Office Hours:

    9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

Emergency Response

In the event of a critical service situation, emergency response is offered by the Tekelec Customer Care Center 24 hours a day, 7 days a week. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

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

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

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

Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into the Tekelec Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the *Tekelec Customer Support* site.

   Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

Chapter 2

Range Based Address Resolution

Topics:

- *Range Based Address Resolution overview.....12*

This section provides an overview of the function of the Range Based Address Resolution (RBAR) application.

Range Based Address Resolution overview

Range Based Address Resolution (RBAR) is a DSR-enhanced routing application that allows the routing of Diameter end-to-end transactions based on Diameter Application ID, Command Code, Routing Entity Type, and Routing Entity addresses (range and individual) as a Diameter Proxy Agent. A Routing Entity can be:

- a User Identity:
  - International Mobile Subscriber Identity (IMSI)
  - Mobile Subscriber Integrated Services Digital Network (Number) (MSISDN)
  - IP Multimedia Private Identity (IMPI)
  - IP Multimedia Public Identity (IMPU)
- an IP Address associated with the User Equipment
  - IPv4
  - IPv6-prefix
- a general purpose data type: UNSIGNED16

Routing resolves to a destination that can be configured with any combination of a Realm and Fully Qualified Domain Name (FQDN) such as Realm-only, FQDN-only, or Realm and FQDN.

When a message successfully resolves to a destination, RBAR replaces the destination information (Destination-Host and/or Destination-Realm) in the ingress (incoming) message, with the corresponding values assigned to the resolved destination, and forwards the message to the (integrated) DSR Relay Agent for egress (forward) routing into the network.

Chapter 3

Configuration

Topics:

- *Configuration overview.....14*
- *Applications configuration.....14*
- *Exceptions configuration.....17*
- *Destinations configuration.....20*
- *Address Tables configuration.....23*
- *Addresses configuration.....25*
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This section describes the procedures used to configure the RBAR application.

Configuration overview

The **RBAR ➤ Configuration** pages allow you to manage the RBAR routing configuration.

Prior to using the RBAR configuration pages, you should:

- Configure the network topology. This includes network elements, servers, server groups, and network devices and routes.
- Assign IP addresses to the server groups.

Note: For information about configuring the DSR network topology, see the **Diameter** online help.

RBAR configuration typically occurs in the following order:

1. Add a **Supported Diameter Application**.
2. Configure a **Destination**.
3. If necessary, edit **Routing Exceptions**.
4. Configure an **Address Table**.
5. Create an **Address Range**.
6. If necessary, create an **Individual Address**.
7. Configure an **Address Resolution**.
8. If necessary, change the **System Options**.
9. If necessary, change the **DSR OAM Configurations**.

   For additional information related to network and routing configuration, see the **DSR Administration** section of the online help.

Applications configuration

The **Applications** page allows you to access the attributes associated with the supported Diameter applications.

From the **Applications** page, you can:

- Filter the list of supported Diameter applications to display only the desired application(s).
- View a list of supported Diameter applications.
- Insert a supported Diameter application.

  Note: When an application entry is added, Routing Exceptions (**Unknown Command Code**, **No valid Routing Entity Address**, **No Address Match**) are automatically inserted with the **Routing Exception Action** value as Forward Unchanged.

- Edit a supported Diameter application.
- Delete a supported Diameter application.

  Note: When an application entry is deleted, the associated Routing Exceptions are automatically deleted.

Applications configuration elements

This table describes the fields on the Applications View, Insert, and Edit pages. Data Input Notes only apply to the Insert and Edit pages; the View page is read-only.

Table 2: Applications Configuration Elements

Field	Description	Data Input Notes
Application ID	Application ID in a Diameter message The Application ID is an IANA-assigned Diameter Application ID, which is a 32-bit field that is mandatory in all Diameter messages. It is commonly used for screening and routing messages between Diameter nodes. If a combination of the Application ID and Command Code already exists or an Application ID is not specified, an error message appears. To enter an Application ID, select the appropriate radio button and either enter the numeric information or select an ID from the pulldown list.	Format: • Selection text box; numeric • Selection pulldown list: Available Application IDs **Note:** If a combination of the Application ID and Command Code already exists, an error message appears. Range: • Selection text box: 0–4294967295
Application Name	Name of the Application If a duplicate Application Name is entered, an error message appears.	Format: Alphanumeric and underscore (_) Range: 1–32 characters; cannot start with a digit and must contain at least one alpha
Routing Mode (Read only)	Method of routing for Request messages received containing the Diameter Application ID	Format: Disabled pulldown list with a value of **Proxy**.

Viewing supported Diameter applications

Use this task to view currently configured supported Diameter applications.

Select **RBAR ➤ Configuration ➤ Applications**.
The **RBAR Configuration Applications** page appears.

The Applications page appears with a list of supported Diameter applications. This list of applications can be filtered to display only desired applications. The fields are described in *Applications configuration elements*.

Inserting a supported Diameter application

Use this task to add a new Diameter application.

Inserting a supported Application automatically adds three (3) Routing Exceptions (**Unknown Command Code**, **No valid Routing Entity Address**, and **Missing Configured Address Entry**) with the **Routing Exception Action** set to Forward Unchanged.

1. Select **RBAR ➤ Configuration ➤ Applications**.
   The **RBAR Configuration Applications** page appears.
2. Click **Insert**.
   The **RBAR Configuration Applications [Insert]** page appears.
3. From the **Application ID** drop down list, select the Application ID in the Diameter message.

   Note: The Application IDs presented in this list are those created using **Main Menu ➤ Diameter ➤ Application Ids**.

4. Note that the **Routing Mode** field is disabled.
5. Perform one of the following actions:

   - Click **OK** to save the application and return to the **RBAR Configuration Applications** page.
   - Click **Apply** to save the application and stay on this page.

     Note: If field validations succeed after clicking either **OK** or **Apply**, the new Application is saved and an informational message about the automatic addition of the Routing Exceptions appears.

   - Click **Cancel** to return to the **RBAR Configuration Applications** page without saving the changes.

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

   - The **Application ID** is empty; no value was entered or selected
   - The **Application Name** or **Application ID** is not unique; it already exists in the system
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The maximum number of supported Diameter applications (16) is already defined in the system

Editing a supported Diameter application

Use this task to edit a supported Diameter Application entry.

1. Select **RBAR ➤ Configuration ➤ Applications**.
   The **RBAR Configuration Applications** page appears.
2. Select the Application you want to edit, then click **Edit**.
   The **RBAR Configuration Applications [Edit]** page appears.
3. From the **Application ID** drop down list, select the Application ID in the Diameter message.
4. Note that the **Routing Mode** field is disabled.
5. Perform one of the following actions:

   - Click **OK** to save the application and return to the **RBAR Configuration Applications** page.
   - Click **Apply** to save the application and stay on this page.

- Click **Cancel** to return to the **RBAR Configuration Applications** page without saving the changes.

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

- The **Application Name** is not unique; it already exists in the system
- The entry in the **Application Name** field is not valid (wrong data type or out of the valid range)

Deleting a supported Diameter application

Use this task to delete a supported Diameter application entry.

An application cannot be deleted if it is being used by an Address Resolution. Before you perform this task, delete any Address Resolution that uses the Application.

1. Select **RBAR ➤ Configuration ➤ Applications**.
   The **RBAR Configuration Applications** page appears.
2. Select the Application you want to delete, then click **Delete**.
   A popup window appears.
3. Perform one of the following actions:

   - Click **OK** to delete the application.
   - Click **Cancel** to cancel the delete function and return to the **RBAR Configuration Applications** page.

   If **OK** is clicked and the following condition exists, an error message appears:

   - The Application is in use by an Address Resolution

Exceptions configuration

The **Exceptions** page allows you to specify the routing procedure to invoke when RBAR is unable to resolve an address to a Destination for each supported Diameter Application and Routing Exception Type.

There are three (3) Routing Exception entries (**Unknown Command Code**, **No valid Routing Entity Address**, and **Missing Configured Address Entry**) automatically inserted with the **Routing Exception Action** set to Forward Unchanged as the default action for a supported Diameter application entry when that application entry is added. Similarly, these Routing Exceptions that are associated with an application entry are automatically deleted when that application entry is deleted.

From the **Exceptions** page, you can:

- Filter the list of exceptions to display only the desired exceptions.
- View a list of supported Diameter applications and their associated Routing Exception Types and Routing Exception Actions.
- Edit the Routing Exception Action and its associated attributes for a supported Diameter application.

Exceptions configuration elements

This table describes the fields on the Exceptions View and Edit pages only.

Table 3: Exceptions Configuration Elements

Field	Description	Data Input Notes
Application ID (Read only)	Application ID in a Diameter message	N/A
Application Name (Read only)	Name of the application	N/A
Routing Exception Type (Read only)	The routing exception that prevented address resolution. This field displays one of the following values: • Invalid command code • Valid address not found • Valid address was found did not match a provisioned address or address range	N/A
Routing Exception Action	Action that RBAR takes associated with the **Routing Exception Type**	Format: Radio buttons Range: • Forward Unchanged • Forward to Destination • Send Answer with Result-Code AVP • Send Answer with Experimental-Result AVP • Abandon Request
Destination	Destination to where the message is forwarded associated with the **Routing Exception Type**. This field is enabled when the **Routing Exception Action** is set to Forward to Destination.	Format: Pulldown list Range: Available user-configured destinations
Result-Code Value	Answer code associated with this **Routing Exception Type**. This field is enabled when the **Routing Exception Action** is set to either Send Answer with Result-Code AVP or Send Answer with Experimental-Result AVP.	Format: • Selection text box; numeric • Selection pulldown list Range: • Selection box: 1000–5999

Field	Description	Data Input Notes
		• Selection pulldown list: available Diameter answer codes
Vendor-ID	Value returned in the Vendor-ID AVP of the answer message associated with this **Routing Exception Type**. This field is enabled when the **Routing Exception Action** is set to Send Answer with Experimental-Result AVP.	Format: Text box; numeric Range: 1–4294967295
Error Message	Value returned in the Error-Message AVP of the answer message. This field is enabled when the **Routing Exception Action** is set to either Send Answer with Result-Code AVP or Send Answer with Experimental-Result AVP.	Format: Alphanumeric, underscore (_), period (.) Range: 0–64 characters Default: Null string

Viewing Exceptions

Use this task to view currently configured Exceptions.

Select **RBAR ➤ Configuration ➤ Exceptions**.
The **RBAR Configuration Exceptions** page appears. This list of applications and associated Routing Exception information can be filtered to display only desired items.

Editing a Routing Exception

Use this task to edit a Routing Exception.

1. Select **RBAR ➤ Configuration ➤ Exceptions**.
   The **RBAR Configuration Exceptions** page appears.
2. Select the Application ID/Name you want to edit, then click **Edit**.
   The **RBAR Configuration Exceptions [Edit]** page appears.
3. Update the relevant fields.

   For more information about each field, see *Exceptions configuration elements*.
4. Perform one of the following actions:

   - Click **OK** to save the application and return to the **RBAR Configuration Exceptions** page.
   - Click **Apply** to save the application and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration Exceptions** page without saving the changes.

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

   - A valid **Vendor-ID** is missing when the **Routing Exception Action** is `Send Answer with Experimental Result-Code AVP`.
   - A valid **Destination** is missing when the **Routing Exception Action** is `Forward to Destination`.

- A valid **Result-Code Value** is missing when the **Routing Exception Action** is `Send Answer` or `Send Answer with Experimental-Result AVP`.

Destinations configuration

The **Destinations** page contains the attributes associated with a destination to which RBAR routes a message. RBAR uses these attributes to modify the contents of a received message before forwarding the message.

Each destination can be configured with any combination of a Realm and FQDN such as Realm-only, FQDN-only, or Realm and FQDN.

From the **Destinations** page, you can:

- Filter the list of destinations to display only the desired destinations.
- View a list of destinations.
- Insert a destination.
- Edit a destination.
- Delete a destination.

Destinations configuration elements

This table describes the fields on the Destinations View, Insert, and Edit pages.

Table 4: Destinations Configuration Elements

Field	Description	Data Input Notes
Name	Unique name of the Destination If a duplicate Name is entered or the Name is not specified, an error message appears.	Format: Alphanumeric and underscore (_) Range: 1–32 characters; cannot start with a digit and must contain at least one alpha
Realm	Realm of the Destination The **Realm** and **Fully Qualified Domain Name** cannot both be empty; otherwise, an error message appears.	Format: Text box; string consisting of a list of labels separated by dots, where a label must contain letters, digits, hyphen (-) and underscore (_). A label must start with a letter or underscore and must end with a letter or digit. Underscores may be used only as the first character.
Fully Qualified Domain Name	Unique Fully Qualified Domain Name of the Destination If a duplicate FQDN is entered, an error message appears. The **Fully Qualified Domain Name** and **Realm** cannot both be empty; otherwise, an error message appears.	

Field	Description	Data Input Notes
		Range: A label consists up to 63 characters and a Realm or FQDN up to 255 characters
Allow Subsequent RBAR invocation	Enables the subsequent invocation of RBAR on a different DSR node in the network, when RBAR resolves to this destination **Note:** If the **System Options** Allow Subsequent RBAR Invocation option is checked, then this attribute will be ignored.	Format: Check box Range: Checked, unchecked Default: Checked

Viewing Destinations

Use this task to view currently configured Destinations.

Select **RBAR ➤ Configuration ➤ Destinations**.
The **RBAR Configuration Destinations** page appears. This list of destinations can be filtered to display only desired items.

Inserting a Destination

Use this task to add a new Destination.

1. Select **RBAR ➤ Configuration ➤ Destinations**.
   The **RBAR Configuration Destinations** page appears.
2. Click **Insert**.
   The **RBAR Configuration Destinations [Insert]** page appears.
3. Enter a unique name for the destination in the **Name** field.
4. Enter the realm in the **Realm** field.
5. Enter a unique FQDN in the **Fully Qualified Domain Name** field.
6. If you want to allow subsequent invocation of RBAR on a different DSR node in the network, leave the **Allow Subsequent RBAR invocation** check box selected (by default, this option is checked).

   Note: If you do not want to allow subsequent invocation of RBAR on a different DSR node in the network when RBAR resolves to this destination, uncheck this check box. In addition, the **Allow Subsequent RBAR invocation** check box on the **System Options** page *must* be unchecked. For more information about the **System Options** attributes, see *System Options elements*.

7. Perform one of the following actions:

   - Click **OK** to save the destination and return to the **RBAR Configuration Destinations** page.
   - Click **Apply** to save the destination and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration Destinations** page without saving the data.

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

   - Both the **Realm** and **Fully Qualified Domain Name** are empty; no value was entered

- The **Name** or **Fully Qualified Domain Name** is not unique; it already exists in the system
- The entry in any field is not valid (wrong data type or out of the valid range)
- The required **Name** is empty
- The maximum number of destinations (1024) is already defined in the system

Editing a Destination

Use this task to edit a Destination.

1. Select **RBAR ➤ Configuration ➤ Destinations**.
   The **RBAR Configuration Destinations** page appears.
2. Select the Destination you want to edit, then click **Edit**.
   The **RBAR Configuration Destinations [Edit]** page appears.
3. Update the relevant fields.

   For more information about each field, see *Destinations configuration elements*.

   The **Name** field is read-only and cannot be edited.
4. Perform one of the following actions:

   - Click **OK** to save the changes and return to the **RBAR Configuration Destinations** page.
   - Click **Apply** to save the changes and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration Destinations** page without saving the changes.

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

   - Both the **Realm** and **Fully Qualified Domain Name** are empty; no value was entered
   - The **Fully Qualified Domain Name** is not unique; it already exists in the system
   - The entry in any field is not valid (wrong data type or out of the valid range)

Deleting a Destination

Use this task to delete a destination. A destination cannot be deleted if it is being used by any Address Range, Individual Address, or Routing Exception. Before this task is performed, delete the association with any Individual Address, Address Range, or Routing Exception.

1. Select **RBAR ➤ Configuration ➤ Destinations**.
   The **RBAR Configuration Destinations** page appears.
2. Select the destination you want to delete, then click **Delete**.
   A popup window appears.
3. Perform one of the following actions:

   - Click **OK** to delete the destination.
   - Click **Cancel** to cancel the delete function and return to the **RBAR Configuration Destinations** page.

   If **OK** is clicked and the following condition exists, an error message appears:

   - The destination is in use by an Address Range, Individual Address, or Routing Exception.

Address Tables configuration

The **Address Tables** page allows you to access an Address Table and its associated attributes.

From the **Address Tables** page, you can:

- Filter the list of address tables to display only the desired application(s).
- View a list of address tables.
- Insert an address table.
- Delete an address table.

Address Tables configuration elements

This table describes the fields on the Address Tables View and Insert pages only.

Table 5: Address Tables Configuration Elements

Field	Description	Data Input Notes
Name	Unique name of the Address Table If a duplicate Name is entered or the Name is not specified, an error message appears.	Format: Alphanumeric and underscore (_) Range: 1–32 characters; cannot start with a digit and must contain at least one alpha
Comment	Information about the Address Table	Format: Text box; free form Range: up to 64 characters
Routing Entity Type	Type of Routing Entity If the Routing Entity Type is not specified, an error message appears.	Format: Pulldown list Range: • IMSI • MSISDN • IMPI • IMPU • IPv4 • IPv6 Prefix • UNSIGNED16

Viewing Address Tables

Use this task to view currently configured Address Tables.

Select **RBAR ➤ Configuration ➤ Address Tables**.

The **RBAR Configuration Address Tables** page appears. This list of address tables can be filtered to display only desired tables.

Inserting an Address Table

Use this task to add a new Address Table.

1. Select **RBAR > Configuration > Address Table**.
   The **RBAR Configuration Address Table** page appears.
2. Click **Insert**.
   The **RBAR Configuration Address Table [Insert]** page appears.
3. Enter a unique name for the Address Table in the **Name** field.
4. If needed, enter a comment or additional information about the Address Table in the **Comment** field.
5. Select the type of routing entity from the **Routing Entity Type** pulldown list.
6. Perform one of the following actions:
   - Click **OK** to save the Address Table and return to the **RBAR Configuration Address Table** page.
   - Click **Apply** to save the Address Table and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration Address Table** page without saving the data.

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

   - Any required field is empty; no value was entered or selected
   - The **Name** is not unique; it already exists in the system
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - The maximum number of Address Tables (40) is already defined in the system

Deleting an Address Table

Use this task to delete an Address Table. An Address Table cannot be deleted if it is being used by any Individual Address, Address Range, or Address Resolution. Before you perform this task, delete the association with any Individual Address, Address Range, or Address Resolution.

1. Select **RBAR > Configuration > Address Table**.
   The **RBAR Configuration Address Table** page appears.
2. Select the Address Table you want to delete, then click **Delete**.
   A popup window appears.
3. Perform one of the following actions:
   - Click **OK** to delete the Address Table.
   - Click **Cancel** to cancel the delete function and return to the **RBAR Configuration Address Table** page.

   If **OK** is clicked and the following condition exists, an error message appears:

   - The Address Table is in use by an Address Range, Individual Address, or Address Resolution.

Addresses configuration

The **Addresses** page allows you to access the Routing Entity Address Range and Individual Address configurable options.

- The Address Range provides the mapping between a single address range and a Destination for routing.
- The Individual Address provides the mapping between an individual address and a Destination for routing.

Note: If an incoming message maps both an Address Range and an Individual Address, then the Individual Address entry takes priority.

The Address Range and Individual Address entries have their own associated attributes, which are accessed from this **Addresses** page.

From the **Addresses** page, you can:

- Filter the list of addresses to display only the desired records. You can filter the list by the following criteria:
  - Address table
  - Address table and Individual address
  - Address table and Range (start address, end address)
  - Address table, Individual address, and Range (start address, end address)
  - Destination
  - Destination and Address table
  - Destination, Address table, and Individual address
  - Destination, Address table, and Range (start address, end address)
  - Destination, Address table, Individual address, and Range (start address, end address)
- View a list of addresses.
- Insert an address.
- Edit an address.
- Delete an address.

Addresses configuration elements

This table describes the fields on the Addresses View, Insert, and Edit pages. Data Input Notes only apply to the Insert and Edit pages; the View page is read-only.

Table 6: Addresses Configuration Elements

Field	Description	Data Input Notes
View pages		
Table Name	Address Table name	N/A
Address	Address of destination	N/A

Field	Description	Data Input Notes
Entry Type	Address type (Individual or Range)	N/A
Routing Entity	Routing Entity type	N/A
Individual Address	Specific address	N/A
Start Address	Starting address of the Range	N/A
End Address	Ending address of the Range	N/A
Destination	Destination of the Address	N/A
Insert and Edit pages		
Routing Entity Type	Routing Entity type	Format: Pulldown list Range: • IMSI • IMSISDN • IMPI • IMPU • IPv4 • IPv6 Prefix • UNSIGNED16
Table Name	Address Table name	Format: Pulldown list Range: Available user-configured address table names associated to the selected **Routing Entity Type**
Address Type	Type of address for the Routing Entity type	Format: Radio buttons Range: Range or Individual Address
Start Address	Starting address for an Address Range This field is required when Range is selected as **Address Type**. If Address is an IPv6-prefix, the prefix length must be entered in the **IPv6 Prefix length** field.	Format: Text box; • User Identity Address (IMSI, MSISDN, IMPI, IMPU): numeric string; 3–15 digits; valid digits (0–9) • IPv4 Address: up to 15-character string; quad-dotted format; valid characters are numeric (0–9) and dot (.); both
End Address	Ending address for an Address Range This field is required when Range is selected as **Address Type**. If Address is an IPv6-prefix, the prefix length must be entered in the **IPv6 Prefix length** field.	

Field	Description	Data Input Notes
Address	Specific address This field is enabled and required when Individual Address is selected as **Address Type**. If Address is an IPv6-prefix, the prefix length must be entered in the **IPv6 Prefix length** field.	compressed and expanded form are supported; for example: `192.168.1.15` or `192.168.001.015` • IPv6-Prefix Address: Hexadecimal value; up to 39 characters; valid alphanumeric characters (0-9, A-F, a-f) and colon (:); both compressed and expanded form are supported; for example: `1:::2` or `0001:0000:0000:0000:0000:0000:0000:0002` **Note:** If this IPv6 address portion of the IPv6-prefix address is expressed in binary form (converting hexadecimal digits to bits), then no bit that is set (value=1) can be at an index that is greater than the configured IPv6 Prefix length. For example: `0001:0001::` for prefix length 28 is invalid as the 32nd bit is set. In addition, trailing zeros (0) can be dropped in this IPv6 address portion of the IPv6-prefix address but not the leading zeros (0); for example: `8::` for prefix length 1 is

Field	Description	Data Input Notes
		invalid because `8::` is treated as `0008::` • UNSIGNED16: Hexadecimal value; valid alphanumeric characters (0-9, A-F, a-f); for example: `512`, `20`, `40`, `AA`, `50A`, `FFFF` Range: • User Identity Address (IMSI, MSISDN, IMPI, IMPU): 3–15 digits • IPv4 Address: valid IPv4 address • IPv6-Prefix Address: valid IPv6 address • UNSIGNED16: 0–FFF
IPv6 Prefix length	Prefix length of an IPv6-prefix address; specifies how many of the leftmost contiguous bits of the address comprise the prefix. This field is enabled and required when IPv6 Prefix is selected as **Routing Entity Type**.	Format: Text box; numeric Range: 1–128
Destination	Destination of the Address	Format: Pulldown list Range: Available user-configured destinations

Viewing Addresses

Use this task to view currently configured addresses.

1. Select **RBAR ➤ Configuration ➤ Addresses**.
   The **RBAR Configuration Addresses** page appears.
2. Click the desired tab (**Address Ranges**, **Individual Addresses**, or **All Addresses**) to display the associated records.
   The list of associated records appears. The total number of records is also provided.
3. If you want to filter this list of records, select the desired criteria and click **Go**.

   Note: To clear any of the fields, click **Reset**.

   The list can be filtered in the following combinations:

- Address table
- Address table and Individual address
- Address table and Range (start address, end address)
- Address table, Individual address, and Range (start address, end address)
- Destination
- Destination and Address table
- Destination, Address table, and Individual address
- Destination, Address table, and Range (start address, end address)
- Destination, Address table, Individual address, and Range (start address, end address)

The addresses that match the search criteria appear.

Note: The IPv4 address appears in a collapsed form (for example: 1:2:3:4). The IPv6 Prefix address appears in the format *ipv6-address/prefix-length* where *ipv6-address* is in a collapsed form and *prefix-length* is a decimal value specifying how many of the leftmost contiguous bits of the address comprise the prefix.

The list of addresses is restricted to display a maximum of 100,000 records. If this condition occurs, an informational message will display stating that the number of records was restricted to 100,000. In addition, an informational message appears stating the number of records that correspond to the applied filter.

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

- **Address** entry is not within the **Start Address** and **End Address** entries
- **Start Address** is greater than the **End Address**
- The entry in any field is not valid (wrong data type or out of the valid range)

Inserting an Address

Use this task to add a new address or range of addresses to a Routing Entity type.

Before this task is performed, make sure there is at least one Address Table and one Destination configured in the system.

1. Select **RBAR ➤ Configuration ➤ Addresses**.
   The **RBAR Configuration Addresses** page appears.
2. Click **Insert**.
   The **RBAR Configuration Addresses [Insert]** page appears.
3. Select the type of Routing Entity from the **Routing Entity Type** pulldown list.
4. Select the name of the Address Table from the **Address Table** pulldown list.
5. Select the desired **Address Type** radio button (Range or Individual Address).
6. Enter the appropriate address data depending on the selection of the **Address Type**:
   - For Range:
     1. Enter the starting address for the range in the **Start Address** field.
     2. Enter the ending address for the range in the **End Address** field.
   - For Individual Address, enter the specific address in the **Address** field.
7. If the address entered is an IPv6-prefix, enter the prefix length in the **IPv6 Prefix length** field.

8. Select the Destination from the **Destination** pulldown list.
9. Perform one of the following actions:

   - Click **OK** to save the address entry and return to the **RBAR Configuration Addresses** page.
   - Click **Apply** to save the address entry and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration Addresses** page without saving the data.

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

   - **Start Address** is greater than the **End Address**
   - **Start Address** and **End Address** for an Address Range are overlapping or already exists
   - At least one **Address Table** and one **Destination** have not been configured; they do not exist in the system
   - Address already exists for a **Table Name**
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - Any required field is empty
   - The maximum number of records for the Address Type (1,000,000 for each type) is already defined in the system

Editing an Address

Use this task to edit an address associated with a Routing Entity type.

1. Select **RBAR ➤ Configuration ➤ Addresses**.
   The **RBAR Configuration Addresses** page appears.
2. Select the Address you want to edit, then click **Edit**.

   Note: For details about locating an address, see *Viewing Addresses*.

   The **RBAR Configuration Addresses [Edit]** page appears.
3. Update the relevant fields.
   For more information about each field, see *Addresses configuration elements*.

   The following fields are read-only and cannot be edited:

   - **Routing Entity Type**
   - **Address Type**

4. Perform one of the following actions:

   - Click **OK** to save the changes and return to the **RBAR Configuration Addresses** page.
   - Click **Apply** to save the changes and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration Addresses** page without saving the changes.

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

   - **Start Address** is greater than the **End Address**
   - **Start Address** and **End Address** for an Address Range are overlapping or already exists
   - Address already exists for a **Table Name**
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - Any required field is empty

Deleting an Address

Use this task to delete an Address.

1. Select **RBAR ➤ Configuration ➤ Addresses**.
   The **RBAR Configuration Addresses** page appears.
2. Select the Address you want to delete, then click **Delete**.

   Note: For details about locating an address, see *Viewing Addresses*.

   A popup window appears.
3. Perform one of the following actions:
   - Click **OK** to delete the Address.
   - Click **Cancel** to cancel the delete function and return to the **RBAR Configuration Addresses** page.

Address Resolutions configuration

The **Address Resolutions** page allows you to define the routing relationship between message content and an address by mapping a Diameter Application ID, Command Code, and Routing Entity Type to a user-configured address (a range or individual address). An Address Resolution supports up to two prioritized Routing Entity Types for each Application ID and Command Code (highest priority – Primary Routing Entity Type – and lowest priority – Secondary Routing Entity Type).

From the **Address Resolutions** page, you can:

- Filter the list of address resolutions to display only the desired records.
- View a list of address resolutions.
- Insert an address resolution.
- Edit an address resolution.
- Delete an address resolution.

Address Resolutions configuration elements

This table describes the fields on the Address Resolutions View, Insert, and Edit pages. Data Input Notes only apply to the Insert and Edit pages; the View page is read-only.

Table 7: Address Resolutions Configuration Elements

Field	Description	Data Input Notes
Application ID	Application ID in a Diameter message The Application ID is an IANA-assigned Diameter Application ID, which is a 32-bit field that is mandatory in all Diameter messages. It is commonly used for screening and routing messages between Diameter nodes.	Format: Pulldown list Range: Available Application IDs (0–4294967295)

Field	Description	Data Input Notes
	If a combination of the Application ID and Command Code already exists, an error message appears.	
Command Code	Command Code in a Diameter message If a combination of the Application ID and Command Code already exists, an error message appears.	Format: Pulldown list Range: Available Command Codes
Primary Routing Entity and Secondary Routing Entity sections		
Routing Entity Type	Routing Entity type The same Routing Entity Type cannot be selected for both the Primary and the Secondary Routing Entity; if the same type is selected, an error message appears. If the Routing Entity Type is not specified for the Primary Routing Entity, an error message appears.	Format: Pulldown list Range: • IMSI • MSISDN • IMPI • IMPU • IPv4 • IPv6 Prefix • UNSIGNED16
Primary AVP	Primary AVP used for extracting the Routing Entity address The same Primary AVP and Secondary AVP cannot be selected for either the Primary Routing Entity or for the Secondary Routing Entity; if the same AVP is selected, an error message appears. If Primary AVP is not selected for the Primary Routing Entity, an error message appears.	Format: Pulldown list Range: • User Identity routing entity type: • Public Identity • ServiceInfoSubscriptionId(0) • ServiceInfoSubscriptionId(1) • ServiceInfoSubscriptionId(2) • ServiceInfoSubscriptionId(3) • ServiceInfoSubscriptionId(4) • Subscription-Id(0) • Subscription-Id(1) • Subscription-Id(2) • Subscription-Id(3) • Subscription-Id(4) • UserIdentity.MSISDN • UserIdentity.PublicIdentity • UserName • IPv4 routing entity type: Framed IP Address
Secondary AVP	Secondary AVP used for extracting the Routing Entity address The same Primary AVP and Secondary AVP cannot be selected for either the Primary Routing Entity or for the Secondary Routing Entity; if the same AVP is selected, an error message appears. The Secondary AVP field is available for User Identity routing types only; this field is disabled if IPV4, IPV6 Prefix, and UNSIGNED16 are selected as the Routing Entity Type.	

Field	Description	Data Input Notes
		• IPv6 Prefix routing entity type: Framed IPv6 Prefix • UNSIGNED16 routing entity type: ServiceInfo.PSInfo.3GPP-CC
Address Table Name	Address Table for this Routing Entity Type If Address Table Name is not selected for the Primary Routing Entity, an error message appears.	Format: Pulldown list Range: Available user-configured Address Table names

Viewing Address Resolutions

Use this task to view currently configured Address Resolutions.

Select **RBAR ➤ Configuration ➤ Address Resolutions**.
The **RBAR Configuration Address Resolutions** page appears. This list of Addess Resolutions can be filtered to display only desired records.

Inserting an Address Resolution

Use this task to add a new Address Resolution.

Before this task is performed, make sure there is at least one supported Diameter Application and one Address Table configured in the system.

1. Select **RBAR ➤ Configuration ➤ Address Resolutions**.
   The **RBAR Configuration Address Resolutions** page appears.
2. Click **Insert**.
   The **RBAR Configuration Address Resolutions [Insert]** page appears.
3. Select an application ID from the **Application ID** pulldown list.

   Note: The Application IDs presented in this list are those created using **Main Menu ➤ RBAR ➤ Configuration ➤ Applications**.

4. Select the appropriate command code from the **Command Code** pulldown list.

   Note: The Command Codes presented in this list are those created using **Main Menu ➤ Diameter ➤ Command Codes** .

5. For the Primary Routing Entity section, perform the following:
   a) Select the appropriate Routing Entity type from the **Routing Entity Type** pulldown list.
   b) Select the Primary AVP from the **Primary AVP** pulldown list.
   c) If needed, select the Secondary AVP from the **Secondary AVP** pulldown list.

      Note: The **Secondary AVP** field is disabled if either IPv4, IPv6 Prefix, or UNSIGNED16 is selected in the **Routing Entity Type** field.

d) Select the Address Table name from the **Address Table Name** pulldown list.

6. If needed, for the Secondary Routing Entity section, perform the following:
   a) Select the appropriate Routing Entity type from the **Routing Entity Type** pulldown list.
   b) Select the Primary AVP from the **Primary AVP** pulldown list.
   c) If needed, select the Secondary AVP from the **Secondary AVP** pulldown list.

      Note: The **Secondary AVP** field is disabled if either IPv4, IPv6 Prefix, or UNSIGNED16 is selected in the **Routing Entity Type** field.

   d) Select the Address Table name from the **Address Table Name** pulldown list.
7. Perform one of the following actions:

   - Click **OK** to save the address resolution and return to the **RBAR Configuration Address Resolutions** page.
   - **Apply** to save the address resolution and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration Address Resolutions** page without saving the data.

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

   - The combination of **Application ID** and **Command Code Value** is not unique; it already exists in the system
   - At least one supported Diameter **Application** and one **Address Table** have not been configured; they do not exist in the system
   - The entry in any field is not valid (wrong data type or out of the valid range)
   - Any required field is empty
   - Duplicate Routing Entity Types were selected in the **Primary** and **Secondary** Routing Entity sections
   - Duplicate AVPs were selected in the **Primary AVP** and **Secondary AVP** fields
   - The maximum number of Address Resolutions (64) is already defined in the system

Editing an Address Resolution

Use this task to edit an Address Resolution.

1. Select **RBAR ➤ Configuration ➤ Address Resolution**.
   The **RBAR Configuration Address Resolutions** page appears.
2. Select the Address Resolution you want to edit, then click **Edit**.
   The **RBAR Configuration Address Resolutions [Edit]** page appears.
3. Update the relevant fields.

   For more information about each field, see *Address Resolutions configuration elements*.

   The following fields are read-only and cannot be edited:

   - **Application ID**
   - **Command Code**

4. Perform one of the following actions:

- Click **OK** to save the changes and return to the **RBAR Configuration Address Resolutions** page.
- Click **Apply** to save the changes and stay on this page.
- Click **Cancel** to return to the **RBAR Configuration Address Resolutions** page without saving the changes.

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

- The entry in any field is not valid (wrong data type or out of the valid range)
- Any required field is empty
- Duplicate Routing Entity Types were selected in the **Primary** and **Secondary** Routing Entity sections
- Duplicate AVPs were selected in the **Primary AVP** and **Secondary AVP** fields

Deleting an Address Resolution

Use this task to delete an Address Resolution.

1. Select **RBAR ➤ Configuration ➤ Address Resolutions**.
   The **RBAR Configuration Address Resolutions** page appears.
2. Select the Address Resolution you want to delete, then click **Delete**.
   A popup window appears.
3. Perform one of the following actions:
   - Click **OK** to delete the Address Resolution.
   - Click **Cancel** to cancel the delete function and return to the **RBAR Configuration Address Resolutions** page.

System Options configuration

The **System Options** page allows you to modify the default system values for RBAR global parameters (for example, FQDN/Realm, or Allow Subsequent RBAR Invocation, or Application Unavailable action).

System Options elements

This table describes the fields on the System Options page.

Table 8: System Options Elements

Field	Description	Data Input Notes
IMPU URI Local Number Enabled	This only applies to the Routing Entity Type **IMPU**; defines whether Local Numbers are considered valid addresses within a SIP or TEL URI. An address of this form is considered a	Format: Check box Range: Checked, unchecked Default: Unchecked

Field	Description	Data Input Notes
	"Local Number" if it does not start with the Global Number prefix character "+". If checked, both Local and Global Numbers are valid addresses for IMPU decoded from Diameter Requests. If unchecked, only Global Numbers are valid addresses.	
ASCII Excluded Digits	List of ASCII characters to ignore while parsing digits from a raw AVP data field of AVP Type UTF8String. If an invalid character is entered, an error message appears.	Format: Text boxes Range: ASCII-printable characters except "%"
Exclude Space	Defines whether ASCII character space is ignored while parsing digits from a raw AVP data field of AVP Type UTF8String If checked, ASCII character space is ignored. If not checked, ASCII character space is not ignored.	Format: Check box Range: Checked, unchecked Default: Unchecked
TBCD Excluded Digits	Defines whether the associated character is ignored while parsing digits from a raw AVP data field of AVP Type OctetString encoded as a TBCD-string If checked, character is ignored. If not checked, character is not ignored.	Format: Check boxes Range: Checked, unchecked for each option: *(0010), #(1011), a(1100), b(1101), c(1110) Default: Unchecked
Allow Subsequent RBAR Invocation	Enables the subsequent invocation of RBAR on a different DSR node in the network If checked, this setting overrides the **Allow Subsequent RBAR Invocation** attribute in **Destination**.	Format: Check box Range: Checked, unchecked Default: Unchecked
Remove Destination-Host	If checked, RBAR deletes any instance of "Destination-Host" AVPs in the message when performing "Realm only" resolution.	Format: Check box Range: Checked, unchecked Default: Unchecked
Realm	Value to be placed in the Origin-Realm AVP of the Answer message generated by RBAR A Realm must be paired with a Fully Qualified Domain Name. If entering a value for Realm, then a value for Fully Qualified Domain Name must	Format: Text box; string consisting of a list of labels separated by dots, where a label must contain letters, digits, hyphen (-) and

Field	Description	Data Input Notes
	also be entered; otherwise, an error message appears. If not configured, the local node Realm for the egress connection is used to populate Origin-Realm AVP.	underscore (_). A label must start with a letter or underscore and must end with a letter or digit. Underscores may be used only as the first character. Range: A label consists up to 63 characters and a Realm or FQDN up to 255 characters
Fully Qualified Domain Name	Value to be placed in the Origin-Host AVP of the Answer message generated by RBAR A Fully Qualified Domain Name must be paired with a Realm. If entering a value for Fully Qualified Domain Name, then a value for Realm must also be entered; otherwise, an error message appears. If not configured, the local node FQDN for the egress connection is used to populate the Origin-Host AVP.	
Resource Exhaustion Result-Code	Result-Code or Experimental-Result-Code value to be returned in an Answer message when a message is not successfully routed because of internal resource being exhausted If Vendor-Id is configured, this result-code value is encoded as Experimental-Result-Code AVP; otherwise the result-code is encoded as Result-Code AVP.	Format: • Selection text box; numeric • Selection pulldown list Range: • Selection box: 1000–5999 • Pulldown list: available Code values Default: 3004
Resource Exhaustion Error Message	Error-Message AVP value to be returned in an Answer message when a message is not successfully routed because of internal resource being exhausted	Format: Alphanumeric, underscore (_), and period (.) Range: 0–64 characters Default: RBAR Resource Exhausted
Resource Exhaustion Vendor-Id	Vendor-Id AVP value to be returned in an Answer message when a message is not successfully routed because of internal resource being exhausted	Format: Text box; numeric Range: 1–4294967295

Field	Description	Data Input Notes
Application Unavailable Action	Defines action to be taken when RBAR is not available to process messages If the Default Route option is selected, an entry must be provided for the Application Unavailable Route List.	Format: Radio buttons Range: • Continue Routing • Default Route • Send Answer with Result-Code AVP • Send Answer with Experimental-Result AVP Default: Continue Routing
Application Unavailable Route List	Defines where the requests will be routed when RBAR is not available. Peer Routing Rules will be bypassed. A route list must be entered if Default Route is selected as the **Application Unavailable Action**.	Format: Pulldown list Range: Available Route List entries
Application Unavailable Result-Code	Result-Code or Experimental-Result-Code value to be returned in an Answer message when a message is not successfully routed because RBAR is not available. If Vendor-Id is configured, this result-code value is encoded as Experimental-Result-Code AVP; otherwise the result-code is encoded as Result-Code AVP. A code must be entered if either the Send Answer with Result-Code AVP or the Send Answer with Experimental Result-Code AVP option is selected as the **Application Unavailable Action**.	Format: • Selection Text box; numeric • Selection pulldown list Range: • Selection box: 1000–5999 • Pulldown list: available Code values Default: 3002
Application Unavailable Error Message	Error-Message AVP value to be returned in an Answer message when a message is not successfully routed because RBAR is not available. A message can be entered, if needed, when either the Send Answer with Result-Code AVP or the Send Answer with Experimental Result-Code AVP option is selected as the **Application Unavailable Action**.	Format: Alphanumeric, underscore (_), and period (.) Range: 0–64 characters Default: RBAR Unavailable

Field	Description	Data Input Notes
Application Unavailable Vendor-Id	Vendor-Id AVP value to be returned in an Answer message when a message is not successfully routed because RBAR is not available. A vendor-Id must be entered if the Send Answer with Experimental Result-Code AVP option is selected as the **Application Unavailable Action**.	Format: Text box; numeric Range: 1–4294967295

Editing System Options

Use this task to edit System Options.

1. Select **RBAR ➤ Configuration ➤ System Options**.
   The **RBAR Configuration System Options** page appears.
2. Update the relevant fields.
   For more information about each field, see *System Options elements*.
3. Perform one of the following actions:
   - Click **OK** to save the changes and return to the **RBAR Configuration System Options** page.
   - Click **Apply** to save the changes and stay on this page.
   - Click **Cancel** to return to the **RBAR Configuration System Options** page without saving the changes.

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

   - Either the **Realm** or **Fully Qualified Domain Name** is empty; no value was entered; these fields must be configured as a pair
   - Any required field is empty; no value was entered
   - The entry in any field is not valid (wrong data type or out of the valid range)

Chapter 4

Copyright, notice, trademarks, and patents

Topics:

- *EAGLE XG Diameter Signaling Router (DSR) - Copyright, Notice, Trademarks, and Patents.....41*

This section provides important information about copyrights, notices, trademarks, and patents associated with this product.

EAGLE XG Diameter Signaling Router (DSR) - Copyright, Notice, Trademarks, and Patents

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RoHS 5/6 - As of July 1, 2006, all products that comprise new installations shipped to European Union member countries will comply with the EU Directive 2002/95/EC "RoHS" (Restriction of Hazardous Substances). The exemption for lead-based solder described in the Annex will be exercised. RoHS 5/6 compliant components will have unique part numbers as reflected in the associated hardware and installation manuals.

WEEE - All products shipped to European Union member countries comply with the EU Directive 2002/96/EC, Waste Electronic and Electrical Equipment. All components that are WEEE compliant will be appropriately marked. For more information regarding Tekelec's WEEE program, contact your sales representative.

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Patents

This product may be covered by one or more of the following U.S. and foreign patents:

U.S. Patent Numbers:

6,795,546; 6,901,262; 6,967,956; 7,043,000; 7,190,959; 7,286,516; 7,318,091; 7,383,298; 7,403,537; 7,406,159; 7,466,807; 7,633,872; 7,633,969; 7,650,367; 7,706,343; 7,743,131; 7,804,789; 7,860,799; 7,916,685; 8,179,885; 8,224,928;

Foreign Patent Numbers:

EP 1314324; EP 1568203; EP 1846832; EP 1847076; ZL 200780017383.1;

Glossary

A

AVP	Attribute-Value Pair The Diameter protocol consists of a header followed by one or more attribute-value pairs (AVPs). An AVP includes a header and is used to encapsulate protocol-specific data (e.g., routing information) as well as authentication, authorization or accounting information.

D

Destination	The node to which the signaling link traffic is routed. This destination is identified by a point code, either a full point code or a cluster point code.
DSR	Diameter Signaling Router A set of co-located Message Processors which share common Diameter routing tables and are supported by a pair of OAM servers. A DSR Network Element may consist of one or more Diameter nodes.

I

IANA	Internet Assigned Numbers Authority An organization that provides criteria regarding registration of values related to the Diameter protocol.
IMPI	IP Multimedia Private Identity

I

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

M

MSISDN	Mobile Station International Subscriber Directory Number The MSISDN is the network specific subscriber number of a mobile communications subscriber. This is normally the phone number that is used to reach the subscriber.

P

Proxy Agent	Performs the basic forwarding functions of a Relay Agent, but unlike a Relay Agent, a Proxy Agent can modify the message content and provide value-added services, enforce rules on different messages, or perform administrative tasks for a specific realm.

R

Range Based Address Resolution	See RBAR.

R

RBAR	Range Based Address Resolution A DSR enhanced routing application which allows the user to route Diameter end-to-end transactions based on Application ID, Command Code, "Routing Entity" Type, and Routing Entity address ranges.
Relay Agent	Diameter agent that forwards requests and responses to other Diameter nodes based on routing-related AVPs (such as Destination-Realm) and routing configuration. Because relays do not make policy decisions, they do not examine or alter non-routing AVPs. As a result, relays never originate messages, do not need to understand the semantics of messages or non-routing AVPs, and are capable of handling any Diameter application or message type.

S

SIP	Session Initiation Protocol

U

URI	Uniform Resource Identifier An internet protocol element consisting of a short string of characters that conform to a certain syntax. The string comprises a name or address that can be used to refer to a resource.