Oracle® Communications Diameter Signaling Router

Measurements Reference

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ORACLE®

Oracle Communications Diameter Signaling Router Measurements Reference

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Chapter 1

Introduction

Topics:

- *Revision History.....45*
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- *Scope and Audience.....45*
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- *Locate Product Documentation on the Oracle Help Center Site.....46*
- *Customer Training.....47*
- *My Oracle Support (MOS).....47*
- *Emergency Response.....48*

This section contains an overview of the available information for DSR alarms and events. The contents include sections on the scope and audience of the documentation, as well as how to receive customer support assistance.

Revision History

Date	Description
July 2016	• Measurements added for new features, DCA and U-SBR.

Overview

The *DSR Measurements* documentation provides information about DSR measurements, provides corrective maintenance procedures, and other information used in maintaining the system.

- Information relevant to understanding measurements in the application
- Measurement report elements and the procedures for printing and exporting measurements
- Lists of measurements by function

Scope and Audience

This manual does not describe how to install or replace software or hardware.

This manual is intended for personnel who must maintain operation of the DSR. The manual provides lists of measurements along with preventive and corrective procedures that will aid personnel in maintaining the DSR.

The corrective maintenance procedures are those used in response to an output message. These procedures are used to aid in the detection, isolation, and repair of faults.

Manual Organization

Information in this document is organized into the following sections:

- *Introduction* contains general information about this document, how to contact *My Oracle Support (MOS)*, and *Locate Product Documentation on the Oracle Help Center Site*.
- *User Interface Introduction* provides basic information about the DSR user interface.
- *Measurements Overview* provides general information about the application's measurements.
- *Measurements* provides detailed measurement information, organized alphabetically by measurement category.
- *Policy DRA Error Resolution Procedures* provides information regarding various error codes associated with Policy DRA.

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

Icon	Description
	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*.)
	Topple: (This icon and text indicate the possibility of *personal injury* and *equipment damage*.)

Related Specifications

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

Locate Product Documentation on the Oracle Help Center Site

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

1. Access the Oracle Help Center site at *http://docs.oracle.com*.
2. Click **`Industries`**.

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

Customer Training

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

http://education.oracle.com/communication

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

www.oracle.com/education/contacts

My Oracle Support (MOS)

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

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

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

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

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

Emergency Response

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

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

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

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

Chapter 2

User Interface Introduction

Topics:

- *User Interface Organization.....50*
- *Missing Main Menu options.....57*
- *Common Graphical User Interface Widgets.....57*

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

User Interface Organization

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

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

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

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

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

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

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

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

User Interface Elements

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

Table 2: User Interface Elements

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

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

Main Menu Options

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

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

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

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

Table 3: Main Menu Options

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

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

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

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

Menu Item	Function

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

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

Menu Item	Function
IPFE (optional)	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.
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 (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 (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.

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

Missing Main Menu options

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

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

Common Graphical User Interface Widgets

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

Supported Browsers

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

System Login Page

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

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

Customizing the Login Message

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

Figure 1: Oracle System Login

1. From the **Main Menu**, click **Administration** > **General Options**.
   The **General Options Administration** page appears.
2. Locate **LoginMessage** in the **Variable** column.
3. Enter the login message text in the **Value** column.
4. Click **OK** or **Apply** to submit the information.
   A status message appears at the top of the Configuration Administration page to inform you if the operation was successful.

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

Accessing the DSR Graphical User Interface

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

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

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

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

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

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

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

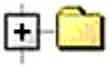
   The DSR GUI for the SOAM appears

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

Main Menu Icons

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

Table 4: Main Menu Icons

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

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

Work Area Displays

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

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

Tables

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

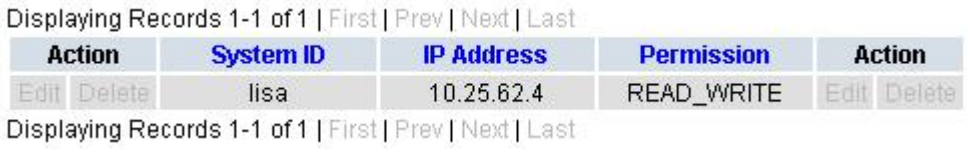
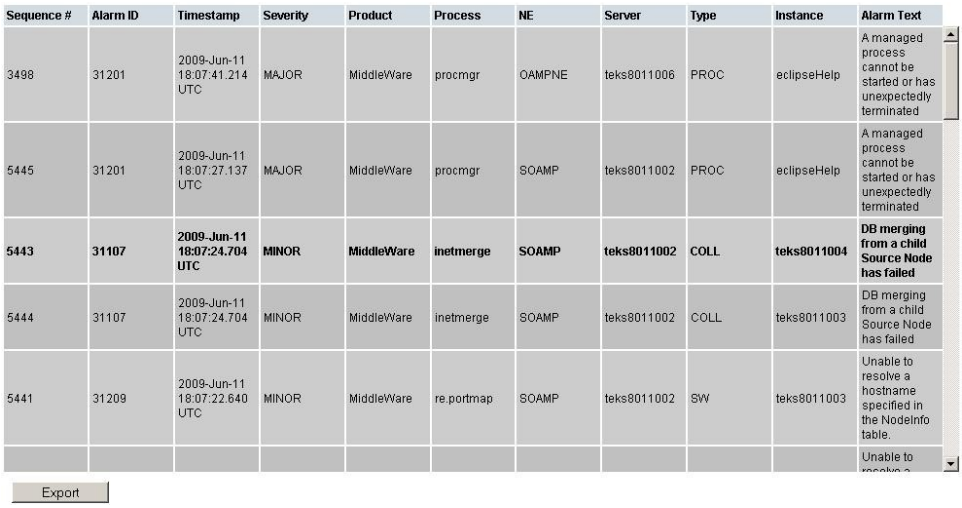


Figure 2: Paginated Table

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



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

Export

Figure 3: Scrollable Table

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

Forms

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

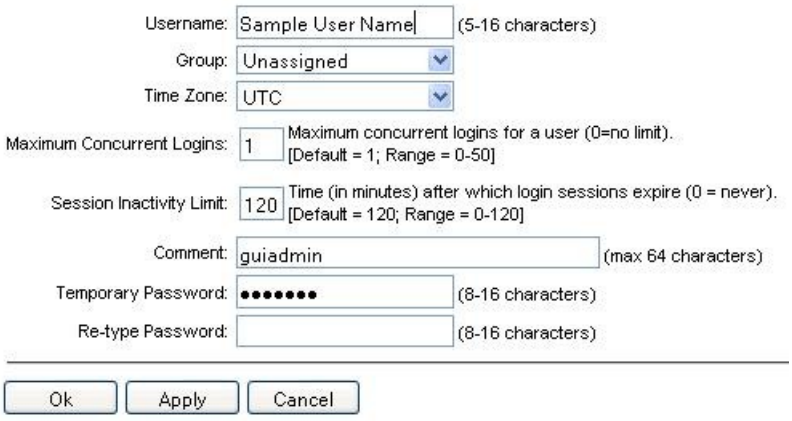
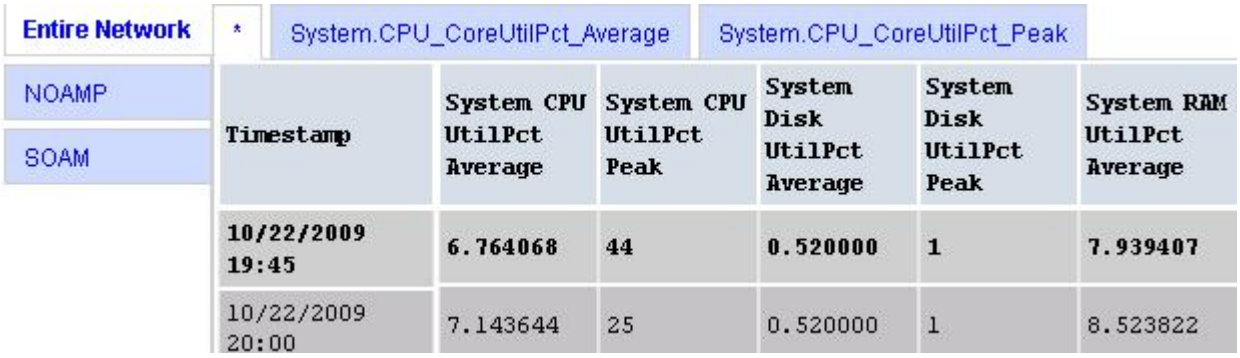


Figure 4: Form Page

Tabbed pages

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



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

Figure 5: Tabbed Pages

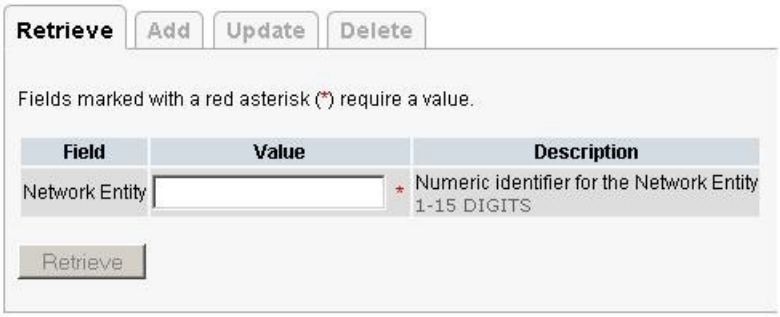


Figure 6: Tabbed Pages

Reports

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

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

User Account Usage Report

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

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

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

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

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

End of User Account Usage Report

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

Figure 7: Report Output

Customizing the Splash Page Welcome Message

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

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

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

Column Headers (Sorting)

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

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

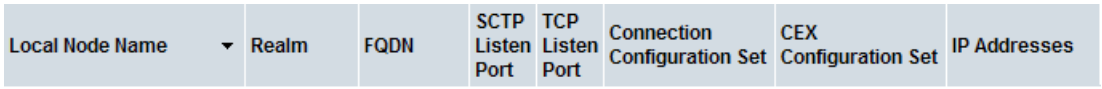


Figure 8: Sorting a Table by Column Header

Page Controls

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

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

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

Table 5: Example Action Buttons

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

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

Some Action buttons take you to another page.

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

Table 6: Submit Buttons

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

Clear Field Control

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

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

Figure 9: Clear Field Control X

Optional Layout Element Toolbar

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

Figure 10: Optional Layout Element Toolbar

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

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

Notifications

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

Figure 11: Automatic Error Notification

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

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

Opening an Element in the Toolbar

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

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

Filters

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

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

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

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

- Collection Interval – When enabled, the collection interval filter limits the data to entries collected in a specified time range.
- Display Filter – The display filter limits the data viewed to data matching the specified criteria.

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

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

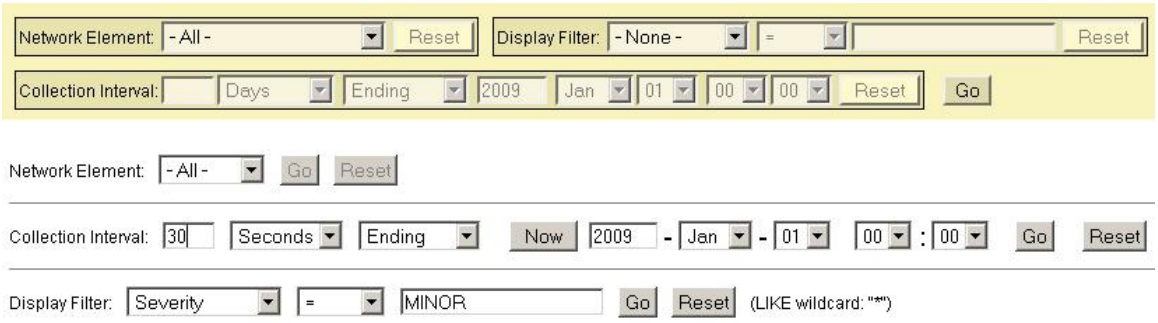


Figure 12: Examples of Filter Styles

Filter Control Elements

This table describes filter control elements of the user interface.

Table 7: Filter Control Elements

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

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

Filtering on the Network Element

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

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

Records are displayed according to the specified criteria.

Filtering on Collection Interval

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

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

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

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

Records are displayed according to the specified criteria.

Filtering Using the Display Filter

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

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

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

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

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

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

Records are displayed according to the specified criteria.

Pause Updates

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

Max Records Per Page Controls

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

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

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

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

   OK saves the change and returns to the previous page.

   Apply saves the change and remains on the same page.

The maximum number of records displayed is changed.

Chapter 3

Measurements Overview

Topics:

- *Measurements Warning.....70*
- *Viewing the file list.....70*
- *Opening a file.....70*
- *Data Export.....70*
- *Tasks.....73*

This section provides general information about the application's measurements.

Measurements Warning

Note: For the most up-to-date information, refer to the MIB document posted with each software release on the *Oracle Software Delivery Cloud* (OSDC) site.

Viewing the file list

Use this procedure to view the list of files located in the file management storage area of a server. The amount of storage space currently in use can also be viewed on the **Files** page.

1. From the Main menu, select **Status & Manage** > **Files**.
2. Select a server.
   All files stored on the selected server are displayed.

Opening a file

Use this procedure to open a file stored in the file management storage area.

1. Select **Status & Manage** > **Files**.
2. Select an **NE Name**.
3. Click **List Files**.
   The **Status & Manage Files** list page for the selected network element displays all files stored in its file management storage area.
4. Click the **Filename** of the file to be opened.
5. Click **Open** to open the file.

Data Export

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

- *Exporting measurements reports*

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

Data Export elements

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

Table 8: Data Export Elements

Element	Description	Data Input Notes
Hostname	Name of export server	Must be a valid hostname or a valid IP address. Range: Maximum length is 255 characters; alphanumeric characters (a-z, A-Z, and 0-9) and minus sign. Hostname must start and end with an alphanumeric. To clear the current export server and remove the file transfer task, specify an empty hostname and username. Default: None
Username	Username used to access the export server	Format: Textbox Range: Maximum length is 32 characters; alphanumeric characters (a-z, A-Z, and 0-9). To clear the current export server and remove the file transfer task, specify an empty hostname and username. Default: None
Directory on Export Server	Directory path on the export server where the exported data files are to be transferred	Format: Textbox Range: Maximum length is 255 characters; valid value is any UNIX string. Default: None
Path to rsync on Export Server	Optional path to the rsync binary on the export server	Format: Textbox Range: Maximum length is 4096 characters; alphanumeric characters (a-z, A-Z, and 0-9),dash, underscore, period, and forward slash. Default: If no path is specified, the username's home directory on the export server is used
Backup File Copy Enabled	Enables or disables the transfer of the backup files	Format: Checkbox Default: Disabled (unchecked)
File Compression	Compression algorithm used when exported data files are initially created on the local host	Format: Radio button Range: gzip, bzip2, or none Default: gzip
Upload Frequency	Frequency at which the export occurs	Format: Radio button Range: fifteen minutes, hourly, daily or weekly Default: weekly

Element	Description	Data Input Notes
Minute	If The Upload Frequency is Hourly, this is the minute of each hour when the transfer is set to begin	Format: Scrolling list Range: 0 to 59 Default: zero
Time of Day	If the Upload Frequency is Daily of Weekly, this is the time of day the export occurs	Format: Time textbox Range: HH:MM AM/PM in 15-minute increments Default: 12:00 AM
Day of Week	If Upload Frequency is Weekly, this is the day of the week when exported data files will be transferred to the export server	Format: Radio button Range: Sunday through Saturday Default: Sunday
SSH Key Exchange	This button initiates an SSH key exchange between the OAM server and the data export server currently defined on the page. A password must be entered before the exchange can complete.	Format: Button
Transfer Now	This button initiates an immediate attempt to transfer any data files in the export directory to the export server	Format: Button
Test Transfer	This button initiates an immediate test transfer to the data export server currently defined on the page.	Format: Button
Keys Report	This button generates an SSH Keys Report for all OAM servers.	Format: Button

Configuring data export

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

1. Select **Administration** > **Remote Servers** > **Data Export**.
2. Enter a **Hostname**.
   See *Data Export elements* for details about the **Hostname** field and other fields that appear on this page.

3. Enter a **Username**.
4. Enter a **Directory Path** on the Export server.
5. (Optional) Enter the **Path to Rsync** on the Export server.

   Note: Depending on the OS and implementation of the remote server, it may be required to define the path to the rsync binary on the export server but this is not common. If no path is specified, the username's home directory on the export server is used.

6. Select whether to enable the transfer of the backup file. To leave the backup disabled, do not check the box.
7. Select the **File Compression** type.
8. Select the **Upload Frequency**.
9. If you selected hourly for the upload frequency, select the **Minute** intervals.
10. If you selected daily or weekly for the upload frequency, select the **Time of Day**.
11. If you selected weekly for the upload frequency, select the **Day of the Week**.
12. If public keys were manually placed on the Export server, skip to step *Step 14*. Otherwise, click **Exchange SSH Key** to transfer the SSH keys to the Export server.
13. Enter the password.
    The server attempts to exchange keys with the export server currently defined on the page. After the SSH keys are successfully exchanged, continue with the next step.
14. Click **OK** to apply the changes or **Cancel** to discard the changes.
    The export server is now configured and available to receive performance and configuration data.
15. You may optionally click **Test Transfer** to confirm the ability to export to the server currently defined on the page.
    The user can monitor the progress of the task by selecting the **Tasks** drop down list in the page control area.

Tasks

The **Tasks** pages display the active, long running tasks and scheduled tasks on a selected server. The **Active Tasks** page provides information such as status, start time, progress, and results for long running tasks, while the **Scheduled Task**s page provides a location to view, edit, and delete tasks that are scheduled to occur.

Active Tasks

The **Active Tasks** page displays the long running tasks on a selected server. The **Active Tasks** page provides information such as status, start time, progress, and results, all of which can be generated into a report. Additionally, you can pause, restart, or delete tasks from this page.

Active Tasks elements

The **Active Tasks** page displays information in a tabular format where each tab represents a unique server. By default, the current server's tab is selected when the page is loaded. This table describes elements on the **Active Tasks** page.

Table 9: Active Tasks Elements

Active Tasks Element	Description
ID	Task ID
Name	Task name
Status	Current status of the task. Status values include: running, paused, completed, exception, and trapped.
Start Time	Time and date when the task was started
Update Time	Time and date the task's status was last updated
Result	Integer return code of the task. Values other than 0 (zero) indicate abnormal termination of the task. Each value has a task-specific meaning.
Result Details	Details about the result of the task
Progress	Current progress of the task

Deleting a task

Use this procedure to delete one or more tasks.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the cursor over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select one or more tasks.

   Note: To delete a single task or multiple tasks, the status of each task selected must be one of the following: completed, exception, or trapped.

   Note: You can select multiple rows to delete at one time. To select multiple rows, press and hold Ctrl as you click to select specific rows.
4. Click **Delete**.
5. Click **OK** to delete the selected task(s).

Deleting all completed tasks

Use this procedure to delete all completed tasks.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the cursor over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Click **Delete all Completed**.
4. Click **OK** to delete all completed tasks.

Cancelling a running or paused task

Use this procedure to cancel a task that is running or paused.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the cursor over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select a task.
4. Click **Cancel**.
5. Click **OK** to cancel the selected task.

Pausing a task

Use this procedure to pause a task.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the mouse over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select a task.

   Note: A task may be paused only if the status of the task is running.

4. Click **Pause**.
   A confirmation box appears.
5. Click **OK** to pause the selected task.
   For information about restarting a paused task, see *Restarting a task*.

Restarting a task

Use this procedure to restart a task.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the mouse over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select a paused task.

   Note: A task may be restarted only if the status of the task is paused.

4. Click **Restart**.
   A confirmation box appears.
5. Click **OK** to restart the selected task.
   The selected task is restarted.

Active Tasks report elements

The **Active Tasks [Report]** page displays report data for selected tasks. This table describes elements on the **Active Tasks [Report]** page.

Table 10: Active Tasks Report Elements

Active Tasks Report Element	Description
Task ID	Task ID
Display Name	Task name
Task State	Current status of the task. Status values include: running, paused, completed, exception, and trapped.
Admin State	Confirms task status
Start Time	Time and date when the task was started
Last Update Time	Time and date the task's status was last updated
Elapsed Time	Time to complete the task
Result	Integer return code of the task. Values other than 0 (zero) indicate abnormal termination of the task. Each value has a task-specific meaning.
Result Details	Details about the result of the task

Generating an active task report

Use this procedure to generate an active task report.

1. Select **Status & Manage** > **Tasks** > **Active Tasks**.
2. Select a server.

   Note: Hovering the mouse over any tab displays the name of the server.

   All active tasks on the selected server are displayed.
3. Select one or more tasks.

   Note: If no tasks are selected, all tasks matching the current filter criteria is included in the report.
4. Click **Report**.
5. Click **Print** to print the report.
6. Click **Save** to save the report.

Scheduled Tasks

The periodic export of measurement data can be scheduled through the GUI. The **Scheduled Tasks** page provides you with a location to view, edit, delete and generate reports of these scheduled tasks. For more information about the measurement data that can be exported, see:

- *Exporting measurements reports*

Scheduled Tasks elements

The **Scheduled Tasks** page displays information in a tabular format where each tab represents a unique server. By default, the current server's tab is selected when the page is loaded. This table describes elements on the **Scheduled Tasks** page.

Table 11: Scheduled Tasks Elements

Scheduled Tasks Element	Description
Task Name	Name given at the time of task creation
Description	Description of the task
Time of Day	The hour and minute the task is scheduled to run
Day-of-Week	Day of the week the task is scheduled to run
Network Elem	The Network Element associated with the task

Editing a scheduled task

Use this procedure to edit a scheduled task.

1. Select **Status & Manage** > **Tasks** > **Scheduled Tasks**.
   All scheduled tasks are displayed on the **Scheduled Tasks** page.
2. Select a task.
3. Click **Edit**.
   The **Data Export** page for the selected task appears.
4. Edit the available fields as necessary.
   See *Scheduled Tasks elements* for details about the fields that appear on this page.
5. Click **OK** or **Apply** to submit the changes and return to the **Scheduled Tasks** page.

Deleting a scheduled task

Use this procedure to delete one or more scheduled tasks.

1. Select **Status & Manage** > **Tasks** > **Scheduled Tasks**.
   All scheduled tasks are displayed on the **Scheduled Tasks** page.
2. Select one or more tasks.
3. Click **Delete**.
4. Click **OK** to delete the selected task(s).

Generating a scheduled task report

Use this procedure to generate a scheduled task report.

1. Select **Status & Manage** > **Tasks** > **Scheduled Tasks**.

All scheduled tasks are displayed on the **Scheduled Tasks** page.

2. Select one or more tasks.

   Note: If no tasks are selected, all tasks matching the current filter criteria is included in the report.

3. Click **Report**.
4. Click **Print** to print the report.
5. Click **Save** to save the report.

Chapter 4

Measurements

Topics:

- *General measurements information.....82*
- *Address Resolution Exception measurements....86*
- *Address Resolution Performance measurements.....96*
- *Application Routing Rules measurements.....105*
- *Association Exception measurements.....108*
- *Association Performance measurements.....118*
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- *Communication Agent (ComAgent) Exception measurements.....122*
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- *Diameter Signaling Router (DSR) Application Exception measurements.....290*
- *Diameter Signaling Router (DSR) Application Performance measurements.....298*
- *Diameter Egress Transaction measurements....321*
- *Diameter Exception measurements.....328*

This section provides general information about measurements (including measurement procedures) and lists the measurements that display on measurement reports.

- *Diameter Ingress Transaction Exception measurements.....340*
- *Diameter Ingress Transaction Performance measurements.....350*
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General measurements information

This section provides general information about measurements, measurement-related GUI elements, and measurement report procedures.

Measurements

The measurements framework allows applications to define, update, and produce reports for various measurements.

- Measurements are ordinary counters that count occurrences of different events within the system, for example, the number of messages received. Measurement counters are also called pegs. Additional measurement types provided by the Platform framework are not used in this release.
- Applications simply peg (increment) measurements upon the occurrence of the event that needs to be measured.
- Measurements are collected and merged at the SOAM and NOAM servers as appropriate.
- The GUI allows reports to be generated from measurements.

Measurements that are being pegged locally are collected from shared memory and stored in a disk-backed database table every 5 minutes on all servers in the network. Measurements are collected every 5 minutes on a 5 minute boundary, i.e. at HH:00, HH:05, HH:10, HH:15, and so on. The collection frequency is set to 5 minutes to minimize the loss of measurement data in case of a server failure, and also to minimize the impact of measurements collection on system performance.

All servers in the network (NOAM, SOAM, and MP servers) store a minimum of 8 hours of local measurements data. More than 5 minutes of local measurements data is retained on each server to minimize loss of measurements data in case of a network connection failure to the server merging measurements.

Measurements data older than the required retention period are deleted by the measurements framework.

Measurements are reported in groups. A measurements report group is a collection of measurement IDs. Each measurement report contains one measurement group. A measurement can be assigned to one or more existing or new measurement groups so that it is included in a measurement report. Assigning a measurement ID to a report group ensures that when you select a report group the same set of measurements is always included in the measurements report.

Note: Measurements from a server may be missing in a report if the server is down; the server is in overload; something in the Platform merging framework is not working; or the report is generated before data is available from the last collection period (there is a 25 to 30 second lag time in availability).

Measurement elements

This table describes the elements on the **Measurements** > **Report** page.

Table 12: Measurements Elements

Element	Description	Data Input Notes
Scope	Network Elements, Server Groups, Resource Domains, Places and Place Associations for which the measurements report can be run. **Note:** Measurements for SOAM network elements are not available in systems that do not support SOAMs.	Format: Pulldown list Range: Network Elements in the topology; Server Groups in the topology; Resource Domains in the topology; Places in the topology; Place Associations in the topology **Note:** If no selection is made, the default scope is Entire Network. Default: Entire Network
Report	A selection of reports	Format: Pulldown list Range: Varies depending on application Default: Group
Column Filter	The characteristics for filtering the column display	Format: Pulldown list Range: Sub-measurement Sub-measurement Ranges: • Like: A pattern-matching distinction for sub-measurement name, for example, 123* matches any sub-measurement that begins with 123. • In: A list-matching distinction for sub-measurement ID, for example, 3,4,6-10 matches only sub-measurements 3, 4, and 6 through 10. Default: None
Time Range	The interval of time for which the data is being reported, beginning or ending on a specified date.	Format: Pulldown list Range: Days, Hours, Minutes, Seconds Interval Reference Point: Ending, Beginning Default: Days

Generating a measurements report

Use this procedure to generate and view a measurements report.

1. Select **Measurements** > **Report**.
2. Select the **Scope**.

   For details about this field, or any field on the **Measurements** > **Report** page, see *Measurement elements*.
3. Select the **Report**.

4. Select the **Interval**.
5. Select the **Time Range**.
6. Select **Beginning** or **Ending** as the **Time Range** interval reference point.
7. Select the **Beginning** or **Ending** date.
8. Click **Go**.

   Note: Data for the selected scope is displayed in the primary report page. Data for any available sub-scopes are displayed in tabs. For example, if the selected scope is Entire Network, report data for the entire network appears in the primary report page. The individual network entities within the entire network are considered sub-scopes.

9. To view report data for a specific sub-scope, click on the tab for that sub-scope.

Measurements data export elements

This table describes the elements on the **Measurements** > **Report [Export]** page.

Table 13: Schedule Measurement Data Export Elements

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

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

Exporting measurements reports

You can schedule periodic exports of data from the **Measurements Report** page. Measurements data can be exported immediately, or you can schedule exports to occur daily or weekly. If filtering has been applied on the **Measurements Report** page, only filtered data is exported.

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

Use this procedure to save a measurements report to the file management storage area.Use this procedure to schedule a data export task.

1. Select **Measurements** > **Report**.

   The **Measurements Report** page appears. For a description of each field, see *Measurement elements*.

2. Generate a measurements report.

   For information about how to generate a measurements report, see *Generating a measurements report*.

3. Click to select the scope or sub-scope measurement report that you want to export.
4. Click **Export**.

   The measurement report is exported to a CSV file. Click the link at the top of the page to go directly to the **Status & Manage** > **Files** page. From the **Status & Manage** page, you can view a list of files available for download, including the measurements report you exported during this procedure. The **Schedule Measurement Log Data Export** page appears.

5. Check the **Report Groups** boxes corresponding to any additional measurement reports to be exported.

   Note: This step is optional, but is available to allow the export of multiple measurement group reports simultaneously.

6. Select the **Export Frequency**.

   Note: If the selected **Export Frequency** is **Fifteen Minutes** or **Hourly**, specify the **Minutes**.

7. Enter the **Task Name**.
   For more information about Task Name, or any field on this page, see *Measurements data export elements*.

   Note: **Task Name** is not an option if **Export Frequency** equals **Once**.

8. Select the **Time of Day**.

Note: **Time of Day** is only an option if **Export Frequency** equals **Daily** or **Weekly**.

9. Select the **Day of Week**.

   Note: **Day of Week** is only an option if **Export Frequency** equals **Weekly**.

10. Click **OK** or **Apply** to initiate the data export task.

    The data export task is scheduled. From the **Status & Manage** > **Tasks** page, you can view a list of files available for download, including the file you exported during this procedure. For more information, see *Viewing the file list*.

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

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

Address Resolution Exception measurements

The Address Resolution Exception measurement group is a set of measurements that provide information about exceptions and unexpected messages and events that are specific to the RBAR Application.

Table 14: Address Resolution Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxRbarDecodeFailureResol	Number of Request messages rejected due to a message decoding error.	5 min
RxRbarInvalidImsiMcc	Number of times an AVP instance present in Diameter request message is rejected due to the MCC contained in the decoded IMSI falls within one of the configured Reserved MCC Ranges.	5 min
RxRbarNgnPsDrop	Number of NGN-PS Diameter messages dropped by RBAR.	5 min
RxRbarResolFailAll	Number of Request messages received which did not resolve to a provisioned address or address range.	5 min
RxRbarResolFailCmdcode	Number of Request messages received with an unknown Command Code.	5 min
RxRbarResolFailDbFail	Number of routing attempt failures due to internal database inconsistency failure.	5 min

Measurement Tag	Description	Collection Interval
RxRbarResolFailImpiMatch	Number of Request messages received with a valid IMPI that did not match a provisioned address or address range.	5 min
RxRbarResolFailImpuMatch	Number of Request messages received with a valid IMPU that did not match a provisioned address or address range.	5 min
RxRbarResolFailImsiMatch	Number of Request messages received with a valid IMSI that did not match a provisioned address or address range.	5 min
RxRbarResolFailIpv4Match	Number of Request messages received with an IPv4 Address that did not match a provisioned address or address range.	5 min
RxRbarResolFailIpv6prefixMatch	Number of Request messages received with an IPv6-Prefix Address that did not match a provisioned address or address range.	5 min
RxRbarResolFailMsisdnMatch	Number of Request messages received with a valid MSISDN that did not match a provisioned address or address range.	5 min
RxRbarResolFailNoAddrAvps	Number of Request messages received without a Routing Entity Address AVP.	5 min
RxRbarResolFailNoValidAddr	Number of Request messages received with at least Routing Entity Address AVP but no valid Routing Entity Addresses were found.	5 min
RxRbarResolFailUnsigned16Match	Number of Request messages received with an UNSIGNED16 value that did not match a provisioned address or address range.	5 min
RxRbarUnkApplId	Number of Request messages rejected due to an unknown Application ID.	5 min
TxRbarAbandonRequest	Number of Request messages that are abandoned.	5 min

RxRbarDecodeFailureResol

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages rejected due to a message decoding error.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and does not decode an AVP which extends beyond the length of the message indicated by the Message Length parameter in the message header.
Measurement Scope	Server Group

Recovery

While parsing the message, the message content was inconsistent with the Message Length in the message header. These protocol violations can be caused by the originator of the message (identified by the Origin-Host AVP in the message) or the peer who forwarded the message to this node.

RxRbarInvalidImsiMcc

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of times an AVP instance present in Diameter request message is rejected due to the MCC contained in the decoded IMSI falls within one of the configured Reserved MCC Ranges.
Collection Interval	5 min
Peg Condition	Each time Diameter request message is rejected due to the MCC contained in the decoded IMSI falls within one of the configured Reserved MCC Ranges.
Measurement Scope	Server Group

Recovery

1. Validate the ranges configured in the Reserved MCC Ranges table.
2. Verify that the MCC portion of the decodable IMSI received by RBAR do not fall within the configured Reserved MCC Ranges.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxRbarNgnPsDrop

Measurement Group	Address Resolution Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	Number of NGN-PS Diameter messages dropped by RBAR.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time an NGN-PS Diameter message is dropped due to these conditions: • Address resolution is unsuccessful and the configured action is abandon • Event sending failure to DRL
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolFailAll

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received which did not resolve to a provisioned address or address range.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailCmdcode

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with an unknown Command Code.

Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and, after attempting to validate the ordered pair (Application ID and Command Code), the Command Code is unknown. RBAR invokes the routing exception handling procedure assigned to this Application ID and Routing Exception Type.
Measurement Scope	Server Group

Recovery

The order pair (Application ID and Command Code) is not provisioned in the Address Resolutions routing configuration. View the currently provisioned Application IDs and Command Codes by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailDbFail

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of routing attempt failures due to internal database inconsistency failure.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and encounters a run-time database inconsistency.
Measurement Scope	Server Group

Recovery

If this problem occurs, it is recommended to contact *My Oracle Support (MOS)*.

RxRbarResolFailImpiMatch

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with a valid IMPI that did not match a provisioned address or address range.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IMPI and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

1. An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.
2. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailImpuMatch

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with a valid IMPU that did not match a provisioned address or address range.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IMPU and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

1. An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.
2. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailImsiMatch

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with a valid IMSI that did not match a provisioned address or address range.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IMSI and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

1. An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.
2. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailIpv4Match

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with an IPv4 Address that did not match a provisioned address or address range
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IPv4 Address and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

1. An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.
2. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailIpv6prefixMatch

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with an IPv6-Prefix Address that did not match a provisioned address or address range
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IPv6-Prefix Address and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

1. An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.
2. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailMsisdnMatch

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with a valid MSISDN that did not match a provisioned address or address range
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of MSISDN and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

1. An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.
2. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailNoAddrAvps

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received without a Routing Entity Address AVP.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message, with the number of AVPs searched–as defined by measurement RxRbarAvgAddrAvps for the message–as `0` and hence, a valid Routing Entity address cannot be found using any of the Routing Entity Types assigned to the ordered pair (Application ID and Command Code).
Measurement Scope	Server Group

Recovery

1. This may be a normal event or an event associated with misprovisioned address resolution configuration. If this event is considered abnormal, validate which AVPs are configured for routing with the Application ID and Command Code.
2. View the currently provisioned Application IDs and Command Codes by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailNoValidAddr

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with at least Routing Entity Address AVP but no valid Routing Entity Addresses were found.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message, with the number of AVPs searched–as defined by measurement RxRbarAvgAddrAvps for the message–as `> 0` but, a valid Routing Entity address cannot be found using any of the Routing Entity Types assigned to the ordered pair (Application ID and Command Code).
Measurement Scope	Server Group

Recovery

1. This may be a normal event or an event associated with misprovisioned address resolution configuration. If this event is considered abnormal, validate which AVPs are configured for routing with the Application ID and Command Code.
2. View the currently provisioned Application IDs and Command Codes by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarResolFailUnsigned16Match

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with an UNSIGNED16 value that did not match a provisioned address or address range.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of UNSIGNED16 and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.
Measurement Scope	Server Group

Recovery

1. An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.
2. View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR** > **Configuration** > **Address Resolutions**.

RxRbarTransactionsRejected

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of transactions rejected by RBAR.
Collection Interval	5 min
Peg Condition	Each time the RBAR application sends an answer response with Result-Code/Experimental-Code or abandons an ingress request message.
Measurement Scope	Server Group

Recovery

1. When non-zero, examine other failure measurements (*TxRbarAbandonRequest*, *RxRbarInvalidImsiMcc*, *RxRbarResolFailUnsigned16Match*, *RxRbarResolFailImpuMatch*, *RxRbarResolFailImpiMatch*, *RxRbarResolFailMsisdnMatch*, *RxRbarResolFailImsiMatch*, *RxRbarResolFailNoAddrAvps*, *RxRbarResolFailCmdcode*, *RxRbarResolFailAll*, *RxRbarDecodeFailureResol*, *RxRbarUnkApplId*) to isolate reasons for failures.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxRbarUnkApplId

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages rejected due to an unknown Application ID. **Note:** The DSR Relay Agent forwarded a Request message to the address resolution application which contained an unrecognized Diameter Application ID in the header. Either a DSR Relay Agent application routing rule is misprovisioned or the Application ID is not provisioned in the RBAR routing configuration.
Collection Interval	5 min
Peg Condition	When a Request message received and the Application ID is not present in the RBAR configuration.

Measurement Scope	Server Group

Recovery

1. View the currently provisioned Diameter Application IDs by selecting **RBAR** > **Configuration** > **Applications**.
2. View the currently provisioned Application Routing Rules by selecting **Diameter** > **Configuration** > **Application Routing Rules**.

TxRbarAbandonRequest

Measurement Group	Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages that are abandoned
Collection Interval	5 min
Peg Condition	Each time the Routing Exception Abandon Request is invoked
Measurement Scope	Server Group

Recovery

No action required.

Address Resolution Performance measurements

The Address Resolution Performance measurement group is a set of measurements that provide performance information that is specific to a RBAR Application. These measurements allow you to determine how many messages are successfully forwarded and received to/from each RBAR Application.

Table 15: Address Resolution Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxRbarAvgMsgSize	Average size of Request message received.	5 min
RxRbarMsgs	Number of Diameter messages received by Range Based Address Resolution application.	5 min
RxRbarNgnPs	Number of NGN-PS Diameter messages received by RBAR.	5 min
RxRbarResolAll	Number of Addresses Successful Resolved to a Destination.	5 min
RxRbarResolAllMp	Number of Addresses Successful Resolved to a Destination by the MP.	5 min

Measurement Tag	Description	Collection Interval
RxRbarResolImpi	Number of Addresses Successful Resolved with Routing Entity type IMPI.	5 min
RxRbarResolImpu	Number of Addresses Successful Resolved with Routing Entity type IMPU.	5 min
RxRbarResolImsi	Number of Addresses Successful Resolved with Routing Entity type IMSI.	5 min
RxRbarResolIpv4	Number of Addresses Successful Resolved with Routing Entity type IPv4 Address.	5 min
RxRbarResolIpv6prefix	Number of Addresses Successful Resolved with Routing Entity type IPv6-Prefix Address.	5 min
RxRbarResolMsisdn	Number of Addresses Successful Resolved with Routing Entity type MSISDN.	5 min
RxRbarResolRateAvg	Average Addresses Successfully Resolved per second.	5 min
RxRbarResolRatePeak	Peak Addresses Successfully Resolved per second.	5 min
RxRbarResolSingleAddr	Number of Addresses Successful Resolved with an Individual Address.	5 min
RxRbarResolUnsigned16	Number of Addresses Successful Resolved with Routing Entity type UNSIGNED16.	5 min
TxRbarFwdDefaultDest	Number of Request message forwarding attempts using a Default Destination.	5 min
TxRbarFwdNochange	Number of Request message forwarding attempts without changing the message.	5 min
TxRbarFwdSuccess	Number of Request messages successfully forwarded (all reasons).	5 min
TxRbarMsgAttempt	Number of Request message forwarding attempts (all reasons).	5 min

RxRbarAvgMsgSize

Measurement Group	Address Resolution Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Average size of Request message received.
Collection Interval	5 min
Peg Condition	Average calculated for each Request message received as defined by measurement *RxRbarMsgs*.

Measurement Scope	Server Group

Recovery

No action required.

RxRbarMsgs

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received by RBAR.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and determines that the Application ID in the message header is defined in the routing configuration and valid.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarNgnPs

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of NGN-PS Diameter messages received by RBAR.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time an NGN-PS Diameter message is received.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolAll

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved to a Destination.

Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolAllMp

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Addresses Successful Resolved to a Destination by the MP.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and successfully resolves its Application ID, Command Code and Routing Entity to a Destination.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolImpi

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IMPI.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IMPI and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolImpu

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IMPU.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IMPU and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolImsi

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IMSI.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IMSI and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolIpv4

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IPv4 Address.

Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IPv4 Address and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolIpv6prefix

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IPv6-Prefix Address.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of IPv6-Prefix Address and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolMsisdn

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type MSISDN.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of MSISDN and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolRateAvg

Measurement Group	Address Resolution Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average Addresses Successfully Resolved per second.
Collection Interval	5 min
Peg Condition	The average per second is periodically calculated based on the total number of addresses successfully resolved as defined by measurement *RxRbarResolAllMp*.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolRatePeak

Measurement Group	Address Resolution Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Peak Addresses Successfully Resolved per second
Collection Interval	5 min
Peg Condition	At the end of each sample period associated with average successfully resolved message rate, as defined by measurement *RxRbarResolRateAvg*, if the value exceeds the current value for this measurement, then the measurement will be updated with the current sample periods value.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolSingleAddr

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with an Individual Address.

Collection Interval	5 min
Peg Condition	When RBAR receives a Request message and uses the Address Exceptions to successfully resolve its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

RxRbarResolUnsigned16

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type UNSIGNED16.
Collection Interval	5 min
Peg Condition	When RBAR receives a Request message with a Routing Entity type of UNSIGNED16 and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.
Measurement Scope	Server Group

Recovery

No action required.

TxRbarFwdDefaultDest

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request message forwarding attempts using a Default Destination.
Collection Interval	5 min
Peg Condition	Each time the Routing Exception Forward route the message with a user-configurable Default Destination is invoked.
Measurement Scope	Server Group

Recovery

No action required

TxRbarFwdNochange

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request message forwarding attempts without changing the message.
Collection Interval	5 min
Peg Condition	Each time the Routing Exception Forward route the message unchanged is invoked.
Measurement Scope	Server Group

Recovery

No action required.

TxRbarFwdSuccess

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages successfully forwarded (all reasons).
Collection Interval	5 min
Peg Condition	Each time the application successfully enqueues a Request message on the DSR Relay Agent's Request Message Queue.
Measurement Scope	Server Group

Recovery

If this value is less than measurement *TxRbarMsgAttempt*, then an internal resource error is occurring. It is recommended to contact *My Oracle Support (MOS)*. if needed.

TxRbarMsgAttempt

Measurement Group	Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request message forwarding attempts (all reasons).
Collection Interval	5 min

Peg Condition	Each time the application attempts to enqueue a Request message on the DSR Relay Agent's Request Message Queue.
Measurement Scope	Server Group

Recovery

No action required.

Application Routing Rules measurements

The Application Routing Rules measurement group is a set of measurements associated with the usage of Application Routing Rules. These measurements will allow the user to determine which Application Routing Rules are most commonly used and the percentage of times that messages were successfully (or unsuccessfully) routed.

Table 16: Application Routing Rule Measurements

Measurement Tag	Description	Collection Interval
RxApplRuleSelected	Number of times that an Application Routing Rule was selected to route a Request message	5 min
RxApplRuleFwdFailAll	Number of times that an Application Routing Rule was selected to route a Request message but the message was not successfully routed (all reasons)	5 min
RxApplRuleFwdFailUnavail	Number of times that an Application Routing Rule was selected to route a Request message but the message was not successfully routed because the DSR Application's Operational Status was Unavailable	5 min
RxApplRuleDuplicatePriority	Number of times that the application routing rule was selected for routing a message but another application routing rule had the same priority and was ignored.	5 min
RxArtSelected	Number of times that an application routing rule from ART-X was selected for routing a Request message	5 min

RxApplRuleSelected

Measurement Group	Application Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Application Routing Rule ID)

Description	Number of times that the application routing rule was selected for routing a Request message.
Collection Interval	5 min
Peg Condition	When DRL selects an application routing rule for routing a message.
Measurement Scope	Server Group

Recovery

No action required.

RxApplRuleFwdFailAll

Measurement Group	Application Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Application Routing Rule ID)
Description	Number of times that the application routing rule was selected for routing a Request message and the message was not successfully routed for any reason.
Collection Interval	5 min
Peg Condition	When DRL selects an application routing rule to route a Request message and one of the following conditions is met: • The DSR Application's Operational Status is "Unavailable". • The DSR Application's Operational Status is not "Unavailable" but the attempt to enqueue the message to the DSR Application failed.
Measurement Scope	Server Group

Recovery

No action required.

RxApplRuleFwdFailUnavail

Measurement Group	Application Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Application Routing Rule ID)
Description	Number of times that the application routing rule was selected for routing a Request message and the message was not successfully routed because DSR Application's Operational Status was "Unavailable".
Collection Interval	5 min

Peg Condition	When DRL selects an application routing rule to route a Request message and the DSR Application's Operational Status is "Unavailable".
Measurement Scope	Server Group

Recovery

No action required.

RxApplRuleDuplicatePriority

Measurement Group	Application Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Application Routing Rule ID)
Description	Number of times that the application routing rule was selected for routing a message but another application routing rule had the same priority and was ignored.
Collection Interval	5 min
Peg Condition	When DRL searches the ART and finds more than one highest priority application routing rule with the same priority that matches the search criteria. The measurement is associated with the application routing rule that is selected for routing.
Measurement Scope	Server Group

Recovery

Use GUI screen: **Main Menu** > **Diameter** > **Configuration** > **Application Routing Rules** to modify peer routing rule priorities.

At least two application routing rules with the same priority matched an ingress Request message. The system selected the first application routing rule found. Application routing rules must be unique for the same type of messages to avoid unexpected routing results.

RxArtSelected

Measurement Group	Application Routing Rules
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of times that an application routing rule from ART-X was selected for routing a Request message
Collection Interval	5 min
Peg Condition	When DRL selects an application routing rule from ART-X for routing a message
Measurement Scope	Server Group

Recovery

No action required.

Association Exception measurements

Table 17: Association Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxTrFarEndClose	Number of times the far end closed the SCTP connection.	30 min
EvTrManClose	The number of times the Transport was manually closed. This includes manual changes of the transport administrative state that caused the transport to transition from APP-UP to Disabled.	30 min
EvTrNoRespClose	The number of times the Transport was closed due to lack of response from the far end. This includes lack of response to any signaling sent on the transport.	30 min
EvTrCnxFail	The number of times the SCTP connection attempt failed on the transport. This includes only unsuccessful attempts to connect/accept SCTP connections. It does not include failure of established connections. The number of times an open attempt on UDP socket in Listen Mode failed on the Transport.	30 min
TxTrSendFail	The number of times the SCTP/UDP sends failed for signaling on the transport. This includes sending of any messages on an established transport or UDP socket.	30 min
RxTrRcvFail	The number of times an SCTP receive attempt failed on the transport. Failure to receive message via SCTP might result in a message being discarded.	30 min
EvTrSockInitFail	Number of times the socket initialization failed.	30 min
RxM3uaERROR	The number of times an M3UA ERROR message is received by the MP server. M3UA ERROR message are sent to inform the originator of an M3UA message that the message cannot be processed due to some problem with the message syntax or semantics.	30 min

Measurement Tag	Description	Collection Interval
TmSingleTransQueueFull	The number of egress messages that were discarded because the single Transport Writer Queue was full.	30 min
EvAsnUpAckTO	Number of times the association timed out waiting for ASP-UP-ACK. ASP-UP-ACK is sent by the far-end in response to an ASP-UP message during association start-up (when the association is in the **Enabled** administrative state).	30 min
RxAsnUnsolDownAck	Number of unsolicited M3UA ASP-DOWN-ACK messages received on the association. Unsolicited ASP-DOWN-ACK messages can be sent by the SG to indicate that the SG cannot process traffic on the association.	30 min
RxAsnInvalidM3ua	Number invalid M3UA messages received on this association. An invalid M3UA message is a message that violates the M3UA protocol.	30 min
EvSctpAdjIPToDwn	Number of times configured IP Address of an Adjacent Node goes from Available to Unavailable.	30 min
EvSctpTransRej	Number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.	30 min

RxAsnFarEndClose

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)
Description	Number of times the far end closed the SCTP connection
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time the far-end of the association closes the association by sending either SHUTDOWN or ABORT.
Measurement Scope	NE, Server

Recovery

1. If the closing of the association was expected, no further action is necessary, the association will be recovered as soon as the far-end is ready to connect again. If the closing of the association was not expected. You can view Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.

2. Look in the event history from the GUI main menu under **Alarms & Events** > **View History** for Event ID 19224 to determine exactly when the far-end closed the association.
3. Look for other events for the association or MP server in the event history.
4. Verify that IP connectivity still exists between the MP server and the SG.
5. Verify whether the far-end of the association is undergoing maintenance.
6. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvAsnManClose

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)
Description	The number of times the association was manually closed. This includes manual changes of the association administrative state that cause the association to transition from ASP-UP to either ASP-DOWN or **Disabled**.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time a manual change is made to the association administrative state from **Enabled** to **Blocked** or from **Enabled** to **Disabled**, causing the association to transition out of ASP-UP protocol state.
Measurement Scope	NE, Server

Recovery

1. If the association is known to be under maintenance no further action is necessary. If the association was not known to be under maintenance, you can view the Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.
2. View the event history from the GUI main menu under **Alarms & Events** > **View History** and look for Event ID 19228. Event ID 19228 shows the manual association state transitions and contains a time-stamp of when the change occurred.
3. View the security logs from the GUI main menu under **Security** > **Logs**. You can search the logs using the time-stamp from the event history log to determine which login performed the manual state change on the association.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvAsnNoRespClose

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	
Description	The number of times the association was closed due to lack of response from the far end. This includes lack of response to any

	signaling sent on the association or to SCTP heartbeating if enabled.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an established SCTP association is closed by the MP server due to lack of response at the SCTP level from the far-end of the association.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. If it has a non-zero value, the association has been closed due to the lack of response from the far-end. The MP server will begin periodic attempts to reconnect to the Signaling Gateway. You can view the Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.
2. Look in the event history from the GUI main menu under **Alarms & Events** > **View History** for Event ID 19225.
3. Verify IP connectivity between the MP server and the Signaling Gateway.
4. Determine if the far-end of the association is congested, possibly causing slow response times on the association.
5. Check the IP network between the MP server and the Signaling Gateway for excessive retransmissions.
6. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvTrCnxFail

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of times the SCTP connection attempt failed on the association. This includes only unsuccessful attempts to connect to the Signaling Gateway. It does not include failure of established connections.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an SCTP connect attempt fails.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. A non-zero value indicates that the MP server has attempted to connect to the Signaling Gateway at least once and failed to establish the SCTP connection.You can view Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.
2. Check the event history log from the GUI main menu under **Alarms & Events** > **View History**, looking for Event ID 19222. Event ID 19222 provides details about the cause of the failure.

3. Verify that the Adjacent server that represents the far-end of the association is configured with the correct IP address. You can view the Adjacent servers from the GUI main menu under **SS7/Sigtran** > **Configuration** > **Adjacent Servers**.
4. Verify that the remote port configured for the association correctly identifies the port that the Signaling Gateway is listening on for SCTP connections. You can view the configured port from the GUI main menu under **SS7/Sigtran** > **Configuration** > **Associations** > **Configure**.
5. Verify the IP network connectivity between the MP server and the Signaling Gateway.
6. If the Signaling Gateway must be configured to connect to the MP server's IP address and port, verify that the signaling gateway configuration matches the association configuration. You can view association data from the GUI main menu under **SS7/Sigtran** > **Configuration** > **Associations** > **Configure**.
7. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxAsnSendFail

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)
Description	The number of times the SCTP Send failed for non-DATA M3UA signaling on the association. The number includes the sending of any non-DATA messages on an established association.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an attempt to send M3UA signaling fails for any reason and the information being sent cannot be mapped to a specific link
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. A non-zero value indicates that an attempt to send a message to the far-end on this association using SCTP has failed. Normally this happens if the far-end cannot keep up with the rate of messages being sent from all links on the association. You can view Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.
2. Look in the GUI main menu under **Alarms & Events** > **View History** in the event history log for Event ID 19233 - Failed to send non-DATA message. Refer to the *DSR Alarms and KPIs Reference* for details about this event and the cause of the failure to send.
3. Verify that the IP network between the MP server and the SG is functioning as expected.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxAsnRecvFailed

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)

Description	The number of times an SCTP/UDP receive attempt failed on the transport. Failure to receive message via SCTP may result in a message being discarded.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an SCTP receive fails when the far-end attempted to send data, but the data cannot be received due to an invalid message length.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. A non-zero value indicates that the far-end is sending data that is malformed. You can view Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.
2. Look in the event history log from the GUI main menu under **Alarms & Events** > **View History** for Event ID 19223. Event ID 19223 gives more information about what caused the failure.
3. Try to bring the sockets back into alignment by manually **Disabling** and **Enabling** the association.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvTrSockInitFail

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of times the socket initialization failed. Socket initialization includes configuring the association according to the settings in the GUI under **SS7/Sigtran** > **Configuration** > **Associations** > **Configuration Sets**.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time one or more socket options cannot be set according to the settings in the association's configuration set.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. A non-zero value indicates a problem with the association setup prior to attempting to connect the association. If this occurs, look for Event ID 19221 in the GUI under **Alarms & Events** > **View History**. Event 19221 provides details about the configuration failure.
2. It is recommended to contact *My Oracle Support (MOS)* for further assistance.

RxAsnM3uaERROR

Measurement Group	Association Exception

Measurement Type	Simple
Measurement Dimension	Arrayed (per association)
Description	The number of M3UA ERROR messages received on the association. An M3UA ERROR message is sent by the far-end to complain about an invalid M3UA message that it received.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an M3UA ERROR message is received that cannot be mapped to a specific link.
Measurement Scope	NE, Server

Recovery

1. This measurement will have a value of zero. A non-zero value indicates a problem with M3UA signaling sent by the MP server.
2. Look for Event ID 19235 from the GUI main menu under **Alarms & Events** > **View History**. Event ID19235 provides more information about the receipt of the ERROR message.
3. If the ERROR reason in Event ID 19235 indicates a problem with the routing context (i.e., error code 0x19), verify that the MP server link set and the SG are configured to agree on the routing context values that each M3UA signaling link uses.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvAsnUpAckTO

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)
Description	The number of times the association timed out waiting for ASP-UP-ACK. ASP-UP-ACK is sent by the far-end in response to an ASP-UP message during the association start-up (when the association is in the **Enabled** administrative state).
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an ASP-UP has been sent and the M3UA State Management ACK Timer expires, but no ASP-UP-ACK has been received for the association.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. If the value is not zero, the association cannot be brought into the state necessary for M3UA ASPTM traffic because the far-end of the association is not responding by sending an ASP-UP-ACK prior to the timeout defined in the GUI under **SS7/Sigtran** > **Configuration** > **Options** > **M3UA**. The field that defines the timeout is the **State Management ACK Timer**.
2. You can view Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.

3. Check the event history from the GUI main menu under **Alarms & Events** > **View History**, looking for Event ID 19226. Event ID 19226 will show when the timeout occurred.
4. Verify that the far-end of the association on the SG is not undergoing maintenance.
5. Verify that the **State Management ACK Timer** value is not set too short. This should not occur if the IP network is functioning correctly.
6. Verify that the IP network between the MP server and the SG is performing up to expectations.
7. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxAsnUnsolDownAck

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)
Description	The number of unsolicited M3UA ASP-DOWN-ACK messages received on the association. Unsolicited ASP-DOWN-ACK messages can be sent by the SG to indicate that the SG cannot process traffic on the association.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an unsolicited ASP-DOWN-ACK is received on the association.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. A non-zero value means that the far-end of the association has stopped processing M3UA signaling. You can view Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.
2. Check the event history from the GUI main menu under **Alarms & Events** > **View History**, looking for Event ID 19227. **Event ID 19227** will show exactly when the unsolicited ASP-DOWN-ACK was received.
3. Verify whether the far-end of the association is undergoing maintenance.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxAsnInvalidM3ua

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)
Description	The number invalid M3UA messages received on this association. An invalid M3UA message is a message that violates the M3UA protocol.
Collection Interval	30 min

Peg Condition	This measurement is incremented by one each time an M3UA message is received on the association that is invalid due to any syntactic or semantic reason.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. In case of a non-zero value in this measurement, review the event history from the GUI main menu under **Alarms & Events** > **View History**, looking for Event 19231.
2. Event 19231 provides details about the reason for rejecting the M3UA message. If the error reason indicates a problem with routing context, verify that the routing context used for the association specified in Event 19231 is configured to match between the ASP and the SG.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmSingleTransQueueFull

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of egress messages that were discarded because the single Transport Writer Queue was full.
Collection Interval	30 min
Peg Condition	Check whether the single peers transmit data queue limit has reached its max limit (1000). If maximum limit is reached or exceeded, then peg the measurement and discard the low priority events.
Measurement Scope	NE, Server

Recovery

This measurement indicates that the Transport is backed up and messages might be discarded. If the value is above the defined critical threshold, an alarm (19408) is generated. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvSctpAdjPToDwn

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	Number of times configured IP Address of an Adjacent Node goes from Available to Unavailable.
Collection Interval	30 min
Peg Condition	This measurement shall be incremented by one each time reachability to a configured IP address of an Adjacent Node is

	lost, indicating a fault in the path to that address was detected. If all is well, the measurement will have a zero value. A non-zero value indicates that a path fault to that address was detected.
Measurement Scope	NE, Server

Recovery

1. Check the event history log at **Main Menu** > **Alarms & Events** > **View History**; look for event ID 19410. Event ID 19410 provides more details about the actual cause of the failure.
2. Verify that the Adjacent Node that represents the far-end of the association is configured with the correct IP address at **Main Menu** > **Transport Manager** > **Configuration** > **Adjacent Node**.
3. Verify IP network connectivity between the MP server and the Adjacent Nodes IP address using a ping or traceroute command.
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvSctpTransRej

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	Number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.
Collection Interval	30 min
Peg Condition	This measurement shall be incremented by one each time the association has been rejected due to IP address validation in the SCTP INITs/INIT-ACKs transmitted by the Adjacent Node. If all is well, the measurement has a zero value. A non-zero value indicates that an Adjacent Node has attempted to connect to the Peer IP Address at least once, but the connection attempt was rejected because the IP address advertised by the Adjacent Node failed validation.
Measurement Scope	NE, Server

Recovery

1. Check the Transport history at **Main Menu** > **Transport Manager** > **Maintenance**.
2. Verify IP network connectivity between the MP server and the Adjacent Nodes IP address using a ping or traceroute command.
3. Verify that the SCTP validation mode is the one that is needed.
4. Verify that the Adjacent Node that represents the far-end of the association is configured with the correct IP address at **Main Menu** > **Transport Manager** > **Configuration** > **Adjacent Node**.
5. Verify that the remote port configured at **Main Menu** > **Transport Manager** > **Configuration** > **Transport** for the association correctly identifies the port that the Adjacent Node is listening on for SCTP connections.
6. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

Association Performance measurements

Table 18: Association Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxTrOctets	The number of octets sent on the SCTP/UDP Transport. It does not include SCTP, IP, or Ethernet headers.	30 min
RxTrOctets	The number of octets received on the SCTP/UDP Transport. It does not include SCTP, IP, or Ethernet headers.	30 min
SCTPAssocQueuePeak	The peak SCTP Single Association Writer Queue utilization (0-100%) measured during the collection interval.	30 min
SCTPAssocQueuePeak	The average SCTP Single Association Writer Queue utilization (0-100%) measured during the collection interval.	30 min

TxTrOctets

Measurement Group Association Performance

Measurement Type Simple

Measurement Dimension Arrayed (per Transport)

Description The number of octets sent on the association. This includes octets for both DATA and non-DATA M3UA signaling. It does not include SCTP, IP, or Ethernet headers.

Collection Interval 30 min

Peg Condition This measurement is incremented by the number of octets in the message each time a DATA/non-DATA message is successfully sent on the transport.

Measurement Scope NE, Server

Recovery

No action required.

RxTrOctets

Measurement Group Association Performance

Measurement Type Simple

Measurement Dimension Arrayed (per Transport)

Description	The number of octets received on the SCTP/UDP Transport. It does not include SCTP, UDP, IP, or Ethernet headers.
Collection Interval	30 min
Peg Condition	This measurement shall be incremented by the number of octets in the message each time a DATA/non-DATA message is successfully received on the transport.
Measurement Scope	NE, Server

Recovery

No action required.

SCTPAssocQueuePeak

Measurement Group	Association Performance
Measurement Type	Max
Measurement Dimension	Arrayed
Description	The peak SCTP Single Association Writer Queue utilization (0-100%) measured during the collection interval.
Collection Interval	30 min
Peg Condition	Transport's queue is registered as a Stack Resource. The StackResourceManager thread monitors and updates the maximum Transport Queue utilization sample taken during the collection interval for affected Transport.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum capacity of an MP over several collection intervals, then the number of MPs in the Network Element might need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then a MP-specific hardware, software, or configuration problem might exist.
3. See Alarm 19408 - Single Transport Egress-Queue Utilization (refer to the *DSR Alarms and KPIs Reference* for details about this alarm).
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SCTPAssocQueueAvg

Measurement Group	Association Performance
Measurement Type	Average
Measurement Dimension	Arrayed
Description	The average SCTP Single Association Writer Queue utilization (0-100%) measured during the collection interval.

Collection Interval	30 min
Peg Condition	The average of all SCTP Single Association Writer Queue utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. This measurement is a measure of how fast the Transport queue is processed and indicates the Average depth of queue over the monitored interval.
2. It is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
3. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum capacity of an MP over several collection intervals, then the number of MPs in the Network Element might need to be increased.
4. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then a MP-specific hardware, software, or configuration problem might exist.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

Association Usage measurements

Table 19: Association Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvTrCnxSuccess	The number of times the SCTP connection was successfully established on the transport. The number of times UDP socket in Listen Mode was opened successfully on the Transport.	30 min
TmAsnBlkNotDown	Number of seconds during the reporting interval during which the association was in the **Blocked** administrative state but was not in ASP-DOWN state. When the association is **Blocked**, the desired protocol state is ASP-DOWN. This measurement indicates the amount of time during the reporting interval for which the association was not in the desired protocol state.	30 min
RxTrOctets	The number of octets received on the SCTP/UDP Transport. It does not include SCTP, IP, or Ethernet headers.	30 min

EvAsnCnxSuccess

Measurement Group	Association Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per association)

Description	The number of times the SCTP connection was successfully established on the association.
Collection Interval	30 min
Peg Condition	This measurement shall be incremented by one each time the SCTP association reaches the ASP-DOWN protocol state (for example, the connection is successfully established).
Measurement Scope	NE, Server

Recovery

1. If the association is expected to have connected during the measurement reporting interval, no action is necessary. Otherwise, preform the following steps:
2. You can view the transport status can be viewed from the GUI main menu under **Transport Manager** > **Maintenance** > **Transport**.
3. Look in the event history from the GUI main menu under **Alarms & Events** > **View History**. Look for events related to the association or the MP server to determine what might have caused the association to fail.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmAsnBlkNotDown

Measurement Group	Association Usage
Measurement Type	Duration
Measurement Dimension	Arrayed (per association)
Description	The number of seconds during the reporting interval during which the association was in the **Blocked** administrative state but was not in ASP-DOWN state. When the association is **Blocked**, the desired protocol state is ASP-DOWN. This measurement indicates the amount of time during the reporting interval for which the association was not in the desired protocol state.
Collection Interval	30 min
Peg Condition	Time is accumulated for this measurement during the collection interval when all of the following are true: • The association is in the **Blocked** administrative state. • The association is not in the ASP-DOWN protocol state.
Measurement Scope	NE, Server

Recovery

1. The value of this measurement should be zero. A non-zero value indicates that the association was set to the **Blocked** administrative state, but was not able to reach the desired protocol state due to some problem. You can view the Association status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Associations**.
2. Verify the Adjacent server that represents the far-end of the association is configured with the correct IP address. You can check the configuration from the GUI main menu under **SS7/Sigtran** > **Configuration** > **Adjacent Servers**.

3. Verify he remote port configured for the association correctly identifies the port that the SG is listening on for SCTP connections. You can check the configuration from the GUI main menu under **SS7/Sigtran** > **Configuration** > **Associations** > **Configure**.
4. Verify the IP network connectivity between the MP server and the SG.
5. If the SG must be configured to connect to the MP server's IP address and port, verify that the SG configuration matches the association configuration. You can check the configuration from the GUI main menu under **SS7/Sigtran** > **Configuration** > **Associations** > **Configure**.
6. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmAsnEnaNotUp

Measurement Group	Association Usage
Measurement Type	Duration
Measurement Dimension	Arrayed (per association)
Description	The time that the association was enabled, but not in the ASP-UP state
Collection Interval	30 min
Peg Condition	Time shall be accumulated for this measurement during the collection interval when all of the following are true: • the association is in the Enabled administrative state • the association is not in the ASP-UP protocol state for any reason
Measurement Scope	NE, Server

Recovery

No action is required.

Communication Agent (ComAgent) Exception measurements

The Communication Agent Exception measurement group is a set of measurements that provide information about exceptions and unexpected messages and events that are specific to the Communication Agent protocol.

Table 20: Communication Agent Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
CADataFIFOQueueFul	StackEvents discarded due to ComAgent DataFIFO queue full condition.	30 min
CADSTxDscrdCong	Number of egress stack events discarded because the congestion level of the connection exceeded the stack events' priority level.	30 min

Measurement Tag	Description	Collection Interval
CAHSRsrcErr	Number of times that ComAgent receives in a heartbeat stack event status concerning a known Resource but an unknown Sub-Resource.	30 min
CAHSTxDscrdCongSR	Number of stack events discarded due to HA Service Sub-Resource congestion.	30 min
CAHSTxDscrdIntErrSR	Number of egress stack events destined to a known Sub-Resource that were discarded due to a ComAgent internal error.	30 min
CAHSTxDscrdUnavailSR	Number of stack events discarded because they were submitted to an Unavailable Sub-Resource of a given Resource.	30 min
CAHSTxDscrdUnknownSR	Number of egress stack events discarded because they referred to a known Resource and an unknown Sub-Resource.	30 min
CAHSTxDscrdUnkwnRsrc	Number of egress stack events discarded because they referred to an unknown Resource.	30 min
CAHSTxRsrc	Number of egress stack events that were routed to a known Resource.	30 min
CAMxFIFOQueueFul	StackEvents discarded due to ComAgent MxFIFO queue full condition.	30 min
CAPSTxDscrdCongPeer	Number of egress events discarded because Peer congestion.	30 min
CAPSTxDscrdUnavailGrp	Number of egress stack events discarded because they referred to a Peer Group which was unavailable.	30 min
CAPSTxDscrdUnkwnGrp	Number of egress stack events discarded because they referred to a Peer Group which was unknown.	30 min
CARsrcPoolFul	ComAgent internal resource pool exhaustion condition	30 min
CARSTxDscrdCong	Number of stack events discarded due to Routed Service congestion.	30 min
CARSTxDscrdSvcUnavail	Number of stack events discarded because they were submitted to an Unavailable Routed Service.	30 min
CARxDiscUnexpEvent	Number of ingress events discarded because it was unexpected in the connection operational state.	30 min

Measurement Tag	Description	Collection Interval
CARxDscrdBundle	Number of ingress bundled event discarded during de-serialization	30 min
CARxDscrdConnUnavail	Number of User Data ingress events discarded because connection was not in-service.	30 min
CARxDscrdDecodeFailed	Number of ingress events discarded because failed to deserialize (event not part of stack service language).	30 min
CARxDscrdIncompat	Number of ingress events discarded because an Incompatible header version is received.	30 min
CARxDscrdInternalErr	Number of ingress events discarded because of other unexpected internal processing error.	30 min
CARxDscrdLayerSendFail	Number of User Data ingress events discarded because layer's sendTo failed.	30 min
CARxDscrdMsgLenErr	Number of ingress events discarded as it doesn't contain enough bytes (less than event header bytes).	30 min
CARxDscrdUnkServer	Number of ingress events discarded because the origination server was unknown/not configured.	30 min
CARxDscrdUnkStkLyr	Number of User Data ingress events discarded because stack layer is not known.	30 min
CARxMsgUnknown	Number of ingress events discarded because stack event was unknown.	30 min
CAStackQueueFul	StackEvents discarded due to ComAgent task queue full condition.	30 min
CATransDscrdInvCorrId	Number of received stack events that were received and discarded because they did not correlate with a pending transaction.	30 min
CATransDscrdStaleErrRsp	Number of times that an error response was discarded because it contained a valid correlation ID value but its originating server was not the last server to which the request was sent.	30 min
CATransEndAbnorm	Number of reliable transactions that terminated abnormally.	30 min
CATransEndAbnormRateAvg	Average rate per second that ComAgent transactions ended abnormally during the collection interval.	30 min

Measurement Tag	Description	Collection Interval
CATransEndAbnormRateMax	Maximum rate per second that ComAgent transactions ended abnormally during the collection interval.	30 min
CATransEndAnsErr	Number of reliable transactions initiated by local User Layers that ended with an error response from a destination server.	30 min
CATransEndErr	Number of reliable transactions initiated by local User Layers that ended abnormally with an error response from a destination server.	30 min
CATransEndNoResources	Number of reliable transactions initiated by local User Layers that ended abnormally due to lack of resources.	30 min
CATransEndNoResponse	Number of reliable transactions initiated by local User Layers that ended abnormally due to a timeout waiting for a response.	30 min
CATransEndUnkwnSvc	Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to an unknown service.	30 min
CATransEndUnregSvc	Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to a known service that lacked a registered User Layer.	30 min
CATransNoReTxMaxTTL	Number of reliable transactions abnormally ended because of Max Time to live exceeded without any retransmits.	30 min
CATransRetx	Number of times stack events were retransmitted.	30 min
CATransReTxExceeded	Number of reliable transactions abnormally ended because of Max number of Retries exceeded.	30 min
CATransStaleSuccessRsp	Number of times that a success response was received from an unexpected server and was accepted to end a transaction.	30 min
CATransTTLExceeded	Number of reliable transactions abnormally ended because of Max Time to live exceeded.	30 min
CATxDscrdConnUnAvail	Number of User Data egress events discarded because connection was not in-service(down/blocked/not aligned).	30 min
CATxDscrdDestUserIncmpat	Number of User Data egress events discarded because the remote doesn't support requested capabilities (either it	30 min

Measurement Tag	Description	Collection Interval
	doesn't support stack or event library or event library version is incompatible)	
CATxDscrdEncodeFail	Number of User Data egress events discarded because of serialization failures	30 min
CATxDscrdInternalErr	Number of egress events discarded because of other unexpected internal processing error.	30 min
CATxDscrdMxSendFail	Number of User Data egress events discarded because of failure reported by MxEndpoint	30 min
CATxDscrdUnknownSvc	Number of non-reliable and non-request (G=0 or R=0) egress stack events discarded because they refer to an unknown service.	30 min
CATxDscrdUnkServer	Number of egress events discarded because the destination server was unknown/not configured.	30 min
CATxDscrdUnregSvc	Number of egress stack events discarded because they reference a known service that has no registered User Layer.	30 min

CADataFIFOQueueFul

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	StackEvents discarded due to ComAgent DataFIFO queue full condition. This value provides a measure of how many messages are discarded by ComAgent due to ComAgent User Data FIFO Queue full condition.
Collection Interval	30 min
Peg Condition	For each User Data StackEvent that is discarded by ComAgent Stack, due to failure in attempting to put the messages in ComAgent User Data FIFO queue.
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating the need for additional queue depth tuning or increase in processing capacity at a Network Element.

   If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the queue depth may need to be tuned.

If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CADSTxDscrdCong

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress stack events discarded because the congestion level of the connection exceeded the stack events' priority level.
Collection Interval	30 min
Peg Condition	When ComAgent receives a stack event from a local User Layer to be transferred via the direct service and the selected connection has a congestion level greater than the priority level of the stack event.
Measurement Scope	Server

Recovery

1. When this measurement is increasing, it is an indication that the product is experiencing overload. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine if the offered load is expected and exceeds the product's capacity.

   If the load is expected and exceeds the product's capacity, then the capacity should be increased so that the overload condition does not persist or reoccur.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAHSRsrcErr

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Resource ID)
Description	Number of times that ComAgent receives in a heartbeat stack event status concerning a known Resource but an unknown Sub-Resource.
Collection Interval	30 min
Peg Condition	When ComAgent stores an unexpected Sub-Resource entry in the local Resource Provider Table. An unexpected Sub-Resource involves a known Resource but an unknown Sub-Resource ID (SRID). This condition is associated with Alarm-ID 19848, and only the first instance of an unexpected Sub-Resource is counted, not the repeats caused by multiple unknown Sub-Resources and the periodic heartbeats containing the same information.

Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** to determine configuration problems.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAHSTxDscrdCongSR

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Resource ID)
Description	Number of stack events discarded due to HA Service Sub-Resource congestion. During normal operation, this measurement should not be increasing. When this measurement is increasing, it is an indication that the product is experiencing overload.
Collection Interval	30 min
Peg Condition	Stack event submitted to ComAgent by a local User Layer, and the stack event references an HA Service Sub-Resource that has a congestion level greater than the priority level of the stack event.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine if the offered load is expected and exceeds the product's capacity.

   If the load is expected and exceeds the product's capacity, then the capacity should be increased so that the overload condition does not persist or reoccur. If the load does not exceed the pproduct's capacity, then check the status of the servers hosting the Resource Providers to trouble-shoot the cause of the overload.

   This measurement may not indicate an error if the discarded stack event was a reliable request, the Reliable Transfer Function was able to re-attempt, and the subsequent attempt got through.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAHSTxDscrdIntErrSR

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Resource ID)
Description	Number of egress stack events destined to a known Sub-Resource that were discarded due to a ComAgent internal error.
Collection Interval	30 min

Peg Condition	User Layer submits to ComAgent an egress stack event destined to a known Sub-Resource and that is discarded due to a ComAgent internal error
Measurement Scope	Server

Recovery

1. Check other ComAgent measurements, alarms, and events to determine the source of the abnormality causing this measurement to arise.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

CAHSTxDscrdUnavailSR

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Resource ID)
Description	Number of stack events discarded because they were submitted to an Unavailable Sub-Resource of a given Resource. During normal operation, this measurement should not be increasing. Each count of this measurement indicates that a local application attempted to send a stack event to another server using an HA Service Sub-Resource, but the event was discarded due to the Sub-Resource being unavailable.
Collection Interval	30 min
Peg Condition	Stack event submitted to ComAgent by a local User Layer, and the stack event references an Unavailable Sub-Resource.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **HA Services Status** to diagnose the cause of routing failures.

   If a discarded stack event was a request from a reliable transaction and the routing failure was due to a temporary condition, then it is possible that the transaction completed successfully using one or more retransmit attempts.

   This measurement may not indicate an error if the discarded stack event was a reliable request, the Reliable Transfer Function was able to re-attempt, and the subsequent attempt got through.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAHSTxDscrdUnknownSR

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Resource ID)

Description	Number of egress stack events discarded because they referred to a known Resource and an unknown Sub-Resource. During normal operation this measurement should be 0. A non-zero value for this measurement indicates that ComAgent is improperly configured to support a local application.
Collection Interval	30 min
Peg Condition	User Layer submits to ComAgent an egress stack event that refers to an unknown Sub-Resource.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **HA Services Status** to verify that all HA Service Sub-Resources expected by local applications are present and operating.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAHSTxDscrdUnkwnRsrc

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress stack events discarded because they referred to an unknown Resource.
Collection Interval	30 min
Peg Condition	User Layer submits to ComAgent an egress stack event that refers to an unknown Resource.
Measurement Scope	Server

Recovery

1.
2. Use **Main Menu** > **Communication Agent** > **Maintenance** > **HA Services Status** to verify that all HA Service Sub-Resources expected by local applications are present and operating.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAHSTxRsrc

Measurement Group	ComAgent Performance, ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Resource ID)
Description	Number of egress stack events that were routed to a known Resource.
Collection Interval	30 min

Peg Condition	User Layer submits to ComAgent an egress stack event destined to a known Resource.
Measurement Scope	Server

Recovery

No action required.

CAMxFIFOQueueFul

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	StackEvents discarded due to ComAgent MxFIFO queue full condition. This value provides a measure of how many messages are discarded by ComAgent due to ComAgent internal connection MxFIFO Queue full condition.
Collection Interval	30 min
Peg Condition	For each User Data StackEvent that is discarded by ComAgent Stack, due to failure in attempting to put the messages in ComAgent internal connection MxFIFO queue.
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating the need for additional queue depth tuning or increase in processing capacity at a Network Element.

   If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the queue depth may need to be tuned.

   If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAPSTxDscrdUnkwnGrp

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress stack events discarded because they referred to a Peer Group which was unknown
Collection Interval	30 min

Peg Condition	For each stack event submitted to ComAgent by a local User Layer and the stack event reference an Unknown Peer Group
Measurement Scope	Server

Recovery

1. A non-zero value of this measurement indicates that a local User Layer is malfunctioning and is attempting to use a Peer Group which it has not configured.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAPSTxDscrdUnavailGrp

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Group ID)
Description	The number of egress stack events discarded because they referred to a Peer Group which was unavailable
Collection Interval	30 min
Peg Condition	For each stack event submitted to ComAgent by a local User Layer and the stack event reference an Unavailable Peer Group
Measurement Scope	Server

Recovery

1. Each count of this measurement indicates that a local User Layer attempted to send a stack event to a remote server using ComAgent Peer Group Service, but the event was discarded due to the specified Peer Group being unavailable. The Peer Group may become unavailable due to:
   - Local User Layer performed maintenance action on the Peer Group that result in a loss of communication between servers.
   - Network problems that result in a loss of communication between servers.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAPSTxDscrdCongPeer

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Group ID)
Description	The number of egress stack events discarded because of Peer congestion.
Collection Interval	30 min

Peg Condition	For each stack event submitted to ComAgent by a local User Layer and the active Peer in the Peer Group has a congestion level greater than the priority level of the stack event.
Measurement Scope	Server

Recovery

1. Check the **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** screens to determine if the offered load is expected and exceeds the product's capacity.

   If the load is expected and exceeds the product's capacity, then the capacity should be increased so that the overload condition does not persist or reoccur.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CARsrcPoolFul

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	ComAgent internal resource pool exhaustion condition.
Collection Interval	30 min
Peg Condition	This is to track the measure of the internal resource (Ex: CommMessage Resource pool) exhaustion condition for a given interval. For each resource allocation/access attempt that result in resource pool manager returning an indication that the maximum resources reserved are allocated and are in-use. When this condition occurs ComAgent tries to allocate a new resource from heap and relists it after its life cycle (Ex: CommMessage objects required for user data traffic for MxEndpoint interface).
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many times pre-allocated resources are exhausted in ComAgent interfaces.

This measurement is primarily intended for performance analysis and to assist in evaluating the need for any additional engineering processing capacity or tuning.

CARSTxDscrdCong

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)

Description	Number of stack events discarded due to Routed Service congestion.
Collection Interval	30 min
Peg Condition	Stack event submitted to ComAgent by a local User Layer, and the stack event references a Routed Service that has a congestion level greater than the priority level of the stack event.
Measurement Scope	Server

Recovery

1. Check the **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** screens to determine if the offered load is expected and exceeds the product's capacity.

   If the load is expected and exceeds the product's capacity, then the capacity should be increased so that the overload condition does not persist or reoccur.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CARSTxDscrdInternalErr

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of egress events discarded because of another Routed Service internal error
Collection Interval	30 min
Peg Condition	Each time an egress event is discarded because of another Router Service internal error
Measurement Scope	Server

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

CARSTxDscrdSvcUnavail

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of stack events discarded because they were submitted to an Unavailable Routed Service.
Collection Interval	30 min

Peg Condition	Stack event submitted to ComAgent by a local User Layer, and the stack event references an Unavailable Routed Service. **Note:** Each count of this measurement indicates that a local application attempted to send a stack event to another server using a Routed Service, but the event was discarded due to the Routed Service being unavailable. Routing failures can occur due to: • Maintenance actions are performed that result in a loss of communication between servers. • Network problems result in a loss of communication between servers. • Server overload can result in routes becoming unavailable for some stack events.
Measurement Scope	Server

Recovery

1. Check the **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** screens to further diagnose the cause of routing failures.

   If a discarded stack event was a request from a reliable transaction and the routing failure was due to a temporary condition, then it is possible that the transaction completed successfully using one or more retransmit attempts.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CARxDiscUnexpEvent

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress events discarded because it was unexpected in the connection operational state
Collection Interval	30 min
Peg Condition	For each ingress StackEvent that is discarded by ComAgent Stack, due to StackEvent received in unexpected connection state.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by ComAgent due to message received in unexpected connection state.

CARxDscrdBundle

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress bundled event discarded during routing.
Collection Interval	30 min
Peg Condition	Each time an ingress bundled event is discarded during routing
Measurement Scope	Site

Recovery

No action required

CARxDscrdConnUnavail

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	
Description	Number of User Data ingress events discarded because connection was not in-service.
Collection Interval	30 min
Peg Condition	For each User Data ingress StackEvent received from configured service peer server with connection status not “in-service”.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data ingress messages are discarded by ComAgent for the data messages received in connection not in “in-service” state.

CARxDscrdDecodeFailed

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress events discarded because failed to deserialize (event not part of stack service language).

Collection Interval	30 min
Peg Condition	For each StackEvent received from a configured peer server that resulted in any decode failures within ComAgent Stack.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by ComAgent due to internal decode error condition.

CARxDscrdIncompat

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress events discarded because an Incompatible header version is received.
Collection Interval	30 min
Peg Condition	For each ingress StackEvent that is discarded by ComAgent Stack, due to unsupported base header version, as indicated in StackEvent.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by ComAgent due to incompatible base header version of base software event library.

CARxDscrdInternalErr

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress events discarded because of other unexpected internal processing error.
Collection Interval	30 min
Peg Condition	For each ingress StackEvent that is discarded by ComAgent Stack, due to internal processing errors for conditions not covered by other meas-pegs.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by ComAgent due to internal software processing errors for conditions not covered by other measurement pegs.

CARxDscrdLayerSendFail

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data ingress events discarded because layer's sendTo failed.
Collection Interval	30 min
Peg Condition	For each User Data StackEvent received from a configured service peer server and resulted in send failure to the destination stack layer.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data ingress messages are discarded by ComAgent due to internal send failure to destination stack layer.

CARxDscrdMsgLenErr

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress events discarded as it doesn't contain enough bytes (less than event header bytes).
Collection Interval	30 min
Peg Condition	For each StackEvent received from configured peer with message size less than the minimum required Header.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by Communication Agent due to message size error.

CARxDscrdUnkServer

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress events discarded because the origination server was unknown/not configured.
Collection Interval	30 min
Peg Condition	For each ingress StackEvent that is discarded by ComAgent Stack, due to unknown origination IP address contents in StackEvent.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by ComAgent due to unknown origination IP address in StackEvent.

CARxDscrdUnkStkLyr

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data ingress events discarded because stack layer is not known.
Collection Interval	30 min
Peg Condition	For each User Data ingress StackEvent received by Communication Agent Stack, for an unknown destination stack.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by Communication Agent , as the destination stack is not registered/known.

CARxMsgUnknown

Measurement Group	ComAgent Exception
Measurement Type	Simple

Measurement Dimension	Single
Description	Number of ingress events discarded because stack event was unknown.
Collection Interval	30 min
Peg Condition	For each undefined StackEvent received from one of the configured peer server.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many ingress messages are discarded by ComAgent as the message is not defined/known to ComAgent Stack.

CAStackQueueFul

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	StackEvents discarded due to ComAgent task queue full condition.
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent that is discarded by ComAgent Stack, due to failure in attempting to put the messages in ComAgent Egress Task Queue.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransDscrdInvCorrId

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single

Description	Number of received stack events that were received and discarded because they did not correlate with a pending transaction.
Collection Interval	30 min
Peg Condition	ComAgent receives a response stack event that contains a correlation ID that does not match a pending transaction record.
Measurement Scope	Server

Recovery

This measurement indicates that one or more destination servers are either responding to requests after a transaction has ended or are sending invalid responses. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransDscrdStaleErrRsp

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of times that an error response was discarded because it contained a valid correlation ID value but its originating server was not the last server to which the request was sent.
Collection Interval	30 min
Peg Condition	ComAgent receives an error response stack event that has a correlation ID for an existing pending transaction record but that is originated from a different server than to which the request was last sent. This measurement indicates that one or more servers are responding with errors to requests after the local ComAgent has retransmitted the requests to other destination servers. This could occur due to: • Network problems result in intermittent loss of communication between servers. • Server overload results in delayed responses
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to check the status of the far-end servers and look for signs of overload.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransEndAbnorm

Measurement Group	ComAgent Exception, ComAgent Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions that terminated abnormally.
Collection Interval	30 min
Peg Condition	• Transaction times-out waiting for a response, and the maximum number of transmits has been reached. • Transaction time-to-live limit is exceeded. • Transaction terminated due to lack of resources. **Note:** This measurement is NOT pegged for these conditions: • Transaction involves an unknown service. • Transaction involves an unregistered Routed Service.
Measurement Scope	Server

Recovery

1. Check the ComAgent Exception report to further diagnose the reasons why transactions are failing.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransEndAbnormRateAvg

Measurement Group	ComAgent Performance, ComAgent Exception
Measurement Type	Average
Measurement Dimension	Arrayed (by Service ID)
Description	Average rate per second that ComAgent transactions ended abnormally during the collection interval.
Collection Interval	30 min
Peg Condition	Rate of transaction failures due to final timeouts. Failed Transaction Rate monitoring is an average rate using a sliding-metric algorithm. The average transaction failure rate is a running average, smoothed over approximately 10 seconds. This measurement provides the average rate per second that ComAgent transactions were started. This measurement is useful during troubleshooting when compared to other measurements.
Measurement Scope	Server

Recovery

No action necessary.

CATransEndAbnormRateMax

Measurement Group	ComAgent Performance, ComAgent Exception
Measurement Type	Max

Measurement Dimension	Arrayed (by Service ID)
Description	Maximum rate per second that ComAgent transactions ended abnormally during the collection interval.
Collection Interval	30 min
Peg Condition	Rate of transaction failures due to final timeouts. Failed Transaction Rate monitoring is an average rate using a sliding-metric algorithm. The average transaction failure rate is a running average, smoothed over approximately 10 seconds. This measurement provides the maximum rate per second that ComAgent transactions were started. This measurement is useful during troubleshooting when compared to other measurements.
Measurement Scope	Server

Recovery

No action necessary.

CATransEndAnsErr

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions initiated by local User Layers that ended with an error response from a destination server.
Collection Interval	30 min
Peg Condition	When a reliable response stack event (G=1, A=1, E=1) is received from a server to which a request was sent, and the response corresponds to a pending transaction record.
Measurement Scope	Server

Recovery

No action necessary.

This measurement has value when compared against other measurements. Server applications may respond with errors as part of normal operations, as seen by ComAgent.

CATransEndErr

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions initiated by local User Layers that ended abnormally with an error response from a destination server.

Collection Interval	30 min
Peg Condition	When a valid reliable response stack event (G=1, A=0, E=1) is received from a server to which a request was sent, and the response corresponds to a pending transaction record. This measurement indicates that one or more destination servers are unable to process reliable requests received from the local server. This can be caused due to maintenance actions, server overload, and unexpected conditions in software.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine network and server communications.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransEndNoResources

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions initiated by local User Layers that ended abnormally due to lack of resources.
Collection Interval	30 min
Peg Condition	ComAgent receives a reliable request (G=1, R=1) from a local User Layer and ComAgent is unable to allocate resources to process the transaction. This measurement indicates that the local server is exhausting its resources for processing reliable transactions. This can result when the combination of transaction rate and response delays exceeds engineered limits. High transaction rates can result from local server overload. Excess response delays can result from overloaded destination servers and problems in the network between servers.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine network and server communications.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransEndNoResponse

Measurement Group	ComAgent Exception
Measurement Type	Simple

Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions initiated by local User Layers that ended abnormally due to a timeout waiting for a response.
Collection Interval	30 min
Peg Condition	Limit on the number of retransmits is reached with no response and limit on the transaction time-to-live is exceeded. This measurement indicates that one or more destination servers are unable to process reliable requests received from the local server. This can be caused due to maintenance actions, server overload, and unexpected conditions in software.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine network and server communications.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransEndUnkwnSvc

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to an unknown service.
Collection Interval	30 min
Peg Condition	ComAgent receives a reliable request (G=1, R=1) from a local User Layer that refers to an unknown service. This measurement indicates improper configuration of ComAgent and/or a User Layer application.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Configuration** > **Routed Services** to confirm that all services expected by local applications are present.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

CATransEndUnregSvc

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single

Description	Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to a known service that lacked a registered User Layer.
Collection Interval	30 min
Peg Condition	ComAgent receives a reliable request (G=1, R=1) from a local User Layer that refers to a known service that has no registered User Layer.
Measurement Scope	Server

Recovery

A non-zero value in this measurement indicates a software malfunction. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransNoReTxMaxTTL

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions abnormally ended because of Max Time to live exceeded without any retransmits.
Collection Interval	30 min
Peg Condition	Maximum Time To Live period exceeded with no retransmission attempts and no response received for the transaction. This measurement provides a measure of abnormal transactions due to maximum time to live period exceeded condition (Without any retransmits) and no response is received from remote. Such abnormal transactions can be due to: • Server overload that can result in delayed responses. • Unexpected conditions in software.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine network and server communications.
2. It is recommended to contact *My Oracle Support (MOS)* if assistance is needed

CATransRetx

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)

Description	Number of times stack events were retransmitted.
Collection Interval	30 min
Peg Condition	ComAgent reliable transaction retransmit timer expires and the limit on the number of retransmits has not been reached. When this measurement is increasing, it indicates that communication between servers is experiencing unexpectedly high latency and/or packet loss. Retransmissions can occur due to: • Maintenance actions are performed that result in a loss of communication between servers. • Network problems result in a loss of communication between servers. • Server overload can result in delayed responses.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine network and server communications.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransReTxExceeded

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions abnormally ended because of Max number of Retries exceeded.
Collection Interval	30 min
Peg Condition	Number of retransmits limit is reached with no response received for the transaction. This measurement provides a measure of abnormal transactions due to maximum number of retransmission exceeded condition awaiting response from remote. Such abnormal transactions can be due to: • Maintenance actions performed that result in a loss of communication between servers. • Server overload that can result in delayed responses. • Unexpected conditions in software.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine network and server communications.

2. It is recommended to contact *My Oracle Support (MOS)* if assistance is needed

CATransStaleSuccessRsp

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of times that a success response was received from an unexpected server and was accepted to end a transaction.
Collection Interval	30 min
Peg Condition	ComAgent receives a success response stack event (G=1, A=1, E=1) that has a correlation ID for an existing pending transaction record but that is originated from a different server than to which the request was last sent. This measurement indicates that a Routed Service received a success response from an unexpected server. This most commonly occurs if a server is slow to respond, ComAgent retransmits a request to another server, and then the original server finally responds to the request.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to diagnose stale responses.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransTTLExceeded

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions abnormally ended because of Max Time to live exceeded.
Collection Interval	30 min
Peg Condition	Maximum Time To Live period exceeded with at least one retransmission attempted and no response received for the transaction. This measurement provides a measure of abnormal transactions due to maximum time to live period exceeded condition (Where at least one retransmission was also attempted) and no response is received from remote. Such abnormal transactions can be due to: • Maintenance actions performed that result in a loss of communication between servers. • Server overload that can result in delayed responses. • Unexpected conditions in software.

Measurement Scope Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** and **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to determine network and server communications.
2. It is recommended to contact *My Oracle Support (MOS)* if assistance is needed

CATxDscrdBundle

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress bundled event discarded during routing.
Collection Interval	30 min
Peg Condition	Each time an egress bundled event is discarded during routing
Measurement Scope	Site

Recovery

No action required

CATxDscrdConnUnAvail

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data egress events discarded because connection was not in-service(down/blocked/not aligned).
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent that is discarded by ComAgent Stack, due to connection status not being in-service.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data egress messages are discarded by ComAgent due to connection unavailability reasons.

CATxDscrdDestUserIncmpat

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data egress events discarded because the remote doesn't support requested capabilities (either it doesn't support stack or event library or event library version is incompatible).
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent that is discarded by Communication Agent Stack, due to incompatibility in requested library id/version and the one known by Communication Agent.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data egress messages are discarded by Communication Agent due to remote not supporting requested capabilities.

CATxDscrdEncodeFail

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data egress events discarded because of serialization failures.
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent that is discarded by Communication Agent Stack, due to any local encode failures.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data egress messages are discarded by Communication Agent due to local encode failure.

CATxDscrdInternalErr

Measurement Group	ComAgent Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress events discarded because of other unexpected internal processing error.
Collection Interval	30 min
Peg Condition	For each egress StackEvent that is discarded by ComAgent Stack, due to internal processing errors for conditions not covered by other meas-pegs.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many egress messages are discarded by ComAgent due to internal software processing errors for conditions not covered by other measurement pegs.

CATxDscrdMxSendFail

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data egress events discarded because of failure reported by MxEndpoint.
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent that is discarded by Communication Agent Stack, due to send failure as indicated by underlying transport.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data egress messages are discarded by Communication Agent due to transport reported error condition.

CATxDscrdUnknownSvc

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of non-reliable and non-request (G=0 or R=0) egress stack events discarded because they refer to an unknown

	service.This measurement indicates that ComAgent is improperly configured to support a local application.
Collection Interval	30 min
Peg Condition	User Layer submits to ComAgent a non-reliable or non-request (G=0 or R=0) egress stack event that refers to an unknown service.
Measurement Scope	Server

Recovery

1. Use **Main Menu** > **Communication Agent** > **Configuration** > **Routed Services** screen to verify that all Routed Services expected by local applications are properly configured.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATxDscrdUnkServer

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress events discarded because the destination server was unknown/not configured.
Collection Interval	30 min
Peg Condition	For each egress StackEvent that is discarded by ComAgent Stack, due to unknown destination IP address contents in StackEvent.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many egress messages are discarded by ComAgent due to unknown destination IP address in StackEvent.

CATxDscrdUnregSvc

Measurement Group	ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of egress stack events discarded because they reference a known service that has no registered User Layer.
Collection Interval	30 min
Peg Condition	User Layer submits to ComAgent an egress stack event that refers to a known service that lacks a registered User Layer.

Measurement Scope Server

Recovery

A non-zero measurement indicates that a local application is malfunctioning and is attempting to use a service for which it has not registered. It is recommended to contact *My Oracle Support (MOS)* for assistance.

Communication Agent (ComAgent) Performance measurements

The Communication Agent Performance measurement group is a set of measurements that provide performance information that is specific to the Communication Agent protocol. These measurements will allow the user to determine how many messages are successfully forwarded and received to and from each DSR Application.

Table 21: Communication Agent Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
CAAvgDataFIFOQueueUtil	Average percentage of ComAgent DataFIFO Queue Utilization	30 min
CAAvgMxFIFOQueueUtil	Average percentage of ComAgent MxFIFO Queue Utilization	30 min
CAAvgQueueUtil	Average percentage of Queue Utilization.	30 min
CAAvgRsrcPoolUtil	Average percentage of internal resource pool utilization	30 min
CAAvgRxStackEvents	Average Number of User Data ingress events received.	30 min
CAAvgTxStackEvents	Average Number of User Data egress events received from stacks to deliver it to remote.	30 min
CADSTx	Number of User Data egress events specifically for the default Direct Service.	30 min
CAHSTxRsrc	Number of egress stack events that were routed to a known Resource.	30 min
CAHSTxRsrcRateAvg	Average rate per second of egress stack events routed to a known Resource.	30 min
CAHSTxRsrcRateMax	Maximum rate per second of egress stack events routed to a known Resource	30 min
CAPeakDataFIF0QueueUtil	Maximum percentage of ComAgent DataFIFO Queue Utilization	30 min
CAPeakMxFIFOQueueUtil	Maximum percentage of ComAgent MxFIFO Queue Utilization	30 min

Measurement Tag	Description	Collection Interval
CAPeakQueueUtil	Maximum percentage of Queue Utilization.	30 min
CAPeakRsrcPoolUtil	Maximum percentage of internal resource pool utilization	30min
CAPeakRxStackEvents	Maximum Number of User Data ingress events received.	30 min
CAPeakTxStackEvents	Maximum Number of User Data egress events received from stacks to deliver it to remote.	30 min
CAPSTxGrpSuccess	Number of egress stack events successfully routed to a known Peer Group.	30 min
CAPSTxGrp	Number of egress stack events submitted to the PG Service to be routed to a known Peer Group.	30 min
CARSTx	Number of stack events submitted to a Routed Service for routing.	30 min
CARx	Number of User Data ingress events received from a peer server.	30 min
CARxSuccess	Number of User Data ingress events successfully routed to local layers.	30 min
CATransEndAbnorm	Number of reliable transactions that terminated abnormally.	30 min
CATransEndAbnormRateAvg	Average rate per second that ComAgent transactions ended abnormally during the collection interval.	30 min
CATransEndAbnormRateMax	Maximum rate per second that ComAgent transactions ended abnormally during the collection interval.	30 min
CATransEndNorm	Number of reliable transactions initiated by local User Layers that ended normally with a response from a destination server.	30 min
CATransPendingAvg	Average number of allocated pending transaction records over the collection interval.	30 min
CATransPendingMax	Maximum number of allocated pending transaction records.	30 min
CATransRateAvg	Average rate per second that ComAgent transactions were started during the collection interval.	30 min

Measurement Tag	Description	Collection Interval
CATransRateMax	Maximum rate per second that ComAgent transactions were started during the collection interval.	30 min
CATransStarted	Number of reliable transactions initiated by local User Layers.	30 min
CATransTimeAvg	Average transaction life-time in milliseconds.	30 min
CATransTimeMax	Maximum transaction life-time in milliseconds.	30 min
CATx	Number of User Data egress events received on Communication Agent task queue from local stacks to deliver it to a peer server.	30 min
CATxSuccess	Number of User Data egress events successfully delivered to a peer server.	30 min

CAAvgDataFIFOQueueUtil

Measurement Group	ComAgent Performance
Measurement Type	Average
Measurement Dimension	Arrayed
Description	Average percentage of ComAgent DataFIFO Queue Utilization.
Collection Interval	30 min
Peg Condition	The average ComAgent connection DataFIFO Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating any issues with ComAgent User Data StackEvent processing and thread scheduling.

   If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the queue depth may need to be tuned.

   If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAAvgMxFIFOQueueUtil

Measurement Group	ComAgent Performance
Measurement Type	Average
Measurement Dimension	Arrayed
Description	Average percentage of ComAgent MxFIFO Queue Utilization.
Collection Interval	30 min
Peg Condition	The average ComAgent connection MxFIFO Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating any issues with internal StackEvent processing and thread scheduling.

   If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the queue depth may need to be tuned.

   If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAAvgQueueUtil

Measurement Group	ComAgent Performance
Measurement Type	Average
Measurement Dimension	Arrayed
Description	Average percentage of Queue Utilization.
Collection Interval	30 min
Peg Condition	The average ComAgent Egress Task Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAAvgRsrcPoolUtil

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Average percentage of internal resource pool utilization.
Collection Interval	30 min
Peg Condition	This is to track the measure of average usage of the internal resource (Ex: CommMessage Resource pool) for a given interval.
Measurement Scope	NE, Server

Recovery

This measurement is primarily intended to assist in evaluating the need for additional processing or performance capacity tuning on a node.

If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of a node over several collection intervals, then the internal engineering resource pool capacity or other dependent parameters may need to be tuned, so that it does not result in unaccounted latency.

CAAvgRxStackEvents

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Average Number of User Data ingress events received.
Collection Interval	30 min
Peg Condition	The average User Data ingress StackEvent sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of Average Value during the interval, for number of User Data messages received from remote.

CAAvgTxStackEvents

Measurement Group	ComAgent Performance
Measurement Type	Average

Measurement Dimension	Single
Description	Average Number of User Data egress events received from stacks to deliver it to remote.
Collection Interval	30 min
Peg Condition	The average User Data egress StackEvent sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of Average Value during the interval, for number of User Data messages transmitted to remote.

CADSTx

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data egress events specifically for the default Direct Service.
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent received specifically for the default Direct Service and processed by ComAgent Stack.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data egress messages are received by ComAgent to be transmitted from hosting server to destined remote server using default Direct "EventTransfer" Service.

CAHSTxRsrc

Measurement Group	ComAgent Performance, ComAgent Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Resource ID)
Description	Number of egress stack events that were routed to a known Resource.
Collection Interval	30 min

Peg Condition	User Layer submits to ComAgent an egress stack event destined to a known Resource.
Measurement Scope	Server

Recovery

No action required.

CAHSTxRsrcRateAvg

Measurement Group	ComAgent Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Resource ID)
Description	Average rate per second of egress stack events routed to a known Resource.
Collection Interval	30 min
Peg Condition	Based upon the SysMetric.
Measurement Scope	Server

Recovery

No action required.

CAHSTxRsrcRateMax

Measurement Group	ComAgent Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Resource ID)
Description	Maximum rate per second of egress stack events routed to a known Resource.
Collection Interval	30 min
Peg Condition	Based upon the SysMetric.
Measurement Scope	Server

Recovery

No action required.

CAPeakDataFIFOQueueUtil

Measurement Group	ComAgent Performance
Measurement Type	Max
Measurement Dimension	Arrayed

Description	Maximum percentage of ComAgent DataFIFO Queue Utilization.
Collection Interval	30 min
Peg Condition	The maximum ComAgent DataFIFO Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating any issues with ComAgent User Data StackEvent processing and thread scheduling.

   If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the queue depth may need to be tuned.

   If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAPeakMxFIFOQueueUtil

Measurement Group	ComAgent Performance
Measurement Type	Max
Measurement Dimension	Arrayed
Description	Maximum percentage of ComAgent MxFIFO Queue Utilization.
Collection Interval	30 min
Peg Condition	The maximum ComAgent connection MxFIFO Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating any issues with internal StackEvent processing and thread scheduling.

   If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the queue depth may need to be tuned.

   If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAPeakQueueUtil

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Maximum percentage of Queue Utilization.
Collection Interval	30 min
Peg Condition	The maximum ComAgent Egress Task Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CAPeakRsrcPoolUtil

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Maximum percentage of internal resource pool utilization.
Collection Interval	30 min
Peg Condition	This is to track the measure of maximum usage of the internal resource (Ex: CommMessage Resource pool) for a given interval.
Measurement Scope	NE, Server

Recovery

This measurement is primarily intended to assist in evaluating the need for additional processing or performance capacity tuning on a node.

If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of a node over several collection intervals, then the internal engineering resource pool capacity or other dependent parameters may need to be tuned, so that it does not result in unaccounted latency.

CAPeakRxStackEvents

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Maximum Number of User Data ingress events received.
Collection Interval	30 min
Peg Condition	The maximum User Data ingress StackEvent sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of Peak Value during the interval, for number of User Data messages received from remote.

CAPeakTxStackEvents

Measurement Group	ComAgent Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Maximum Number of User Data egress events received from stacks to deliver it to remote.
Collection Interval	30 min
Peg Condition	The maximum User Data egress StackEvent sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of Peak Value during the interval, for number of User Data messages transmitted to remote.

CAPSTxGrp

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Group ID)

Description	The number of egress stack events submitted to the Peer Group Service to be routed to a known Peer Group.
Collection Interval	30 min
Peg Condition	For each stack event submitted to ComAgent Peer Group Service by a local User Layer
Measurement Scope	Server

Recovery

No action required. This measurement is useful when compared with other Peer Group Service measurements.

CAPSTxGrpSuccess

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Group ID)
Description	The number of egress stack events successfully routed to a known Peer Group.
Collection Interval	30 min
Peg Condition	For each stack event submitted to ComAgent Peer Group Service by a local User Layer and successfully routed
Measurement Scope	Server

Recovery

No action required. This measurement is useful when compared with other Peer Group Service measurements.

CARSTx

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of stack events submitted to a Routed Service for routing.
Collection Interval	30 min
Peg Condition	Stack event submitted to ComAgent Routed Service by a local User Layer
Measurement Scope	Server

Recovery

No action necessary

CARx

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data ingress events received from a peer server.
Collection Interval	30 min
Peg Condition	For each User Data StackEvent received from one of the configured peer and processed by Communication Agent Stack.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data ingress messages are received by Communication Agent to be transmitted to local hosting stack. This measurement count should be equal to the summation of User Data ingress events success and all User Data ingress events discards measurement counts

CARxBundled

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ComAgent Bundled events received by ComAgent
Collection Interval	30 min
Peg Condition	Each time a ComAgent Bundled event is received by ComAgent
Measurement Scope	Site

Recovery

No action required

CARxEventsBundled

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single

Description	Number of stackevents received in ComAgent Bundled events
Collection Interval	30 min
Peg Condition	Each time a stackevent is received in ComAgent Bundled events
Measurement Scope	Site

Recovery

No action required

CARxSuccess

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data ingress events successfully routed to local layers.
Collection Interval	30 min
Peg Condition	For each User Data StackEvent received from a peer server and successfully transmitted to the local stack.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data ingress messages are received by Communication Agent and are successfully transmitted to local hosting stack.

CATransEndAbnorm

Measurement Group	ComAgent Exception, ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions that terminated abnormally.
Collection Interval	30 min
Peg Condition	• Transaction times-out waiting for a response, and the maximum number of transmits has been reached. • Transaction time-to-live limit is exceeded. • Transaction terminated due to lack of resources. **Note:** This measurement is NOT pegged for these conditions: • Transaction involves an unknown service.

- Transaction involves an unregistered Routed Service.

Measurement Scope Server

Recovery

1. Check the ComAgent Exception report to further diagnose the reasons why transactions are failing.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

CATransEndAbnormRateAvg

Measurement Group	ComAgent Performance, ComAgent Exception
Measurement Type	Average
Measurement Dimension	Arrayed (by Service ID)
Description	Average rate per second that ComAgent transactions ended abnormally during the collection interval.
Collection Interval	30 min
Peg Condition	Rate of transaction failures due to final timeouts. Failed Transaction Rate monitoring is an average rate using a sliding-metric algorithm. The average transaction failure rate is a running average, smoothed over approximately 10 seconds. This measurement provides the average rate per second that ComAgent transactions were started. This measurement is useful during troubleshooting when compared to other measurements.
Measurement Scope	Server

Recovery

No action necessary.

CATransEndAbnormRateMax

Measurement Group	ComAgent Performance, ComAgent Exception
Measurement Type	Max
Measurement Dimension	Arrayed (by Service ID)
Description	Maximum rate per second that ComAgent transactions ended abnormally during the collection interval.
Collection Interval	30 min
Peg Condition	Rate of transaction failures due to final timeouts. Failed Transaction Rate monitoring is an average rate using a sliding-metric algorithm. The average transaction failure rate is a running average, smoothed over approximately 10 seconds. This measurement provides the maximum rate per second that ComAgent transactions were started. This measurement is useful during troubleshooting when compared to other measurements.
Measurement Scope	Server

Recovery

No action necessary.

CATransEndNorm

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions initiated by local User Layers that ended normally with a response from a destination server.
Collection Interval	30 min
Peg Condition	When a valid reliable response stack event (G=1, A=1) is received that corresponds to a pending transaction record.
Measurement Scope	Server

Recovery

No action necessary.

This measurement has value when compared against other measurements. If no new transactions are started, then during normal operation, this measurement should match *CATransStarted* .

CATransPendingAvg

Measurement Group	ComAgent Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Service ID)
Description	Average number of allocated pending transaction records over the collection interval.
Collection Interval	30 min
Peg Condition	Average number of allocated pending transaction records during the collection interval.
Measurement Scope	Server

Recovery

No action necessary.

CATransPendingMax

Measurement Group	ComAgent Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Service ID)

Description	Maximum number of allocated pending transaction records.
Collection Interval	30 min
Peg Condition	When a pending transaction record is allocated, and the total count of allocated pending transaction records exceeds the current peak.
Measurement Scope	Server

Recovery

No action necessary.

CATransRateAvg

Measurement Group	ComAgent Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Service ID)
Description	Average rate per second that ComAgent transactions were started during the collection interval.
Collection Interval	30 min
Peg Condition	Transaction rate monitoring is an average rate using a sliding-metric algorithm. The average transaction rate is a running average, smoothed over approximately 10 seconds. This measurement provides the average rate per second that ComAgent transactions were started. This measurement is useful during troubleshooting when compared to other measurements.
Measurement Scope	Server

Recovery

No action necessary.

CATransRateMax

Measurement Group	ComAgent Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Service ID)
Description	Maximum rate per second that ComAgent transactions were started during the collection interval.
Collection Interval	30 min
Peg Condition	Transaction rate monitoring is an average rate using a sliding-metric algorithm. The average transaction rate is a running average, smoothed over approximately 10 seconds. This measurement provides the maximum rate per second that ComAgent transactions

	were started. This measurement is useful during troubleshooting when compared to other measurements.
Measurement Scope	Server

Recovery

No action necessary.

CATransStarted

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Service ID)
Description	Number of reliable transactions initiated by local User Layers.
Collection Interval	30 min
Peg Condition	When a valid reliable request stack event (G=1, R=1) is received from a local User Layer.
Measurement Scope	Server

Recovery

No action necessary.

CATransTimeAvg

Measurement Group	ComAgent Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Service ID)
Description	Average transaction life-time in milliseconds.
Collection Interval	30 min
Peg Condition	Transaction ends either normally or abnormally.
Measurement Scope	Server

Recovery

No action necessary.

CATransTimeMax

Measurement Group	ComAgent Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Service ID)
Description	Maximum transaction life-time in milliseconds.

Collection Interval	30 min
Peg Condition	Transaction ends either normally or abnormally.
Measurement Scope	Server

Recovery

No action necessary.

CATx

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data egress events received on Communication Agent task queue from local stacks to deliver it to a peer server.
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent received and processed by Communication Agent Stack.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data egress messages are received by Communication Agent for direct or indirect routing service.

This measurement count should be equal to the summation of User Data egress events success and all User Data egress events discards measurement counts.

This measurement count should be equal to the summation of User Data egress events received by Communication Agent for each (Direct, Routed and HA) routing service.

CATxBundled

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ComAgent Bundled events transmitted by ComAgent
Collection Interval	30 min
Peg Condition	Each time a ComAgent Bundled event is transmitted by ComAgent
Measurement Scope	Site

Recovery

No action required

CATxEventsBundled

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of stackevents transmitted through ComAgent Bundled events
Collection Interval	30 min
Peg Condition	Each time a stackevent is transmitted through ComAgent Bundled events
Measurement Scope	Site

Recovery

No action required

CATxSuccess

Measurement Group	ComAgent Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of User Data egress events successfully delivered to a peer server.
Collection Interval	30 min
Peg Condition	For each User Data egress StackEvent transmitted to the peer server.
Measurement Scope	NE, Server

Recovery

No action required.

This value provides a measure of how many User Data messages are successfully transmitted from hosting server to destined remote server over “event transfer” static connection.

Computer Aided Policy Making (CAPM) measurements

The Computer-Aided Policy Making (CAPM) measurement report contains usage-based measurements related to the Diameter Mediation feature.

Table 22: CAPM Measurement Report Fields

Measurement Tag	Description	Collection Interval
CAPM_Temp_Invoked	Number of times a Rule Template has been invoked. This counter is incremented on a per Rule Template basis every time the Rule Template is processed.	5 min
CAPM_CondSet_True	Number of times a condition set has been evaluated to True. This counter is incremented on a per Rule Template basis every time all the conditions of the condition set match.	5 min
CAPM_Action_Set_Fails	Number of times a failure has occurred while executing the action set. This counter is incremented on a per Rule Template basis every time some of the actions fails. **Note:** This counter is incremented only once even if several actions within an action set have failed.	5 min
CAPM_MsgCopyTriggered	Number of times the MsgCopy action has been invoked successfully	5 min
CAPM_RxReject WithErrorAnswer	The number of Request messages from a downstream peer rejected by a Local Node when an indication from mediation to send back an error answer is received	5 min
CAPM_RxSilentDiscard	The number of Request messages from a downstream peer silently by a Local Node when an indication from mediation to discard the request is received	5 min
CAPM_RxRedirectHost	The number of times the Request was redirected with the 3006 response sent by Mediation.	5 min
CAPM_RxRedirectRealm	The number of times the Request was redirected with the 3011 response sent by Mediation.	5 min
CAPM_RxProcessNAI	The number of times the Request was modified by the "Process Decorated NAI" Mediation action.	5 min
CAPM_Match_Rule	Array of measurements for pegged rules. An element of the array shows how many times a rule matched on an MP	5 min

CAPM_Temp_Invoked

Measurement Group CAPM

Measurement Type Simple

Measurement Dimension	Arrayed (by Mediation Rule Template ID)
Description	Indicates the number of times a Rule Template has been invoked. This counter is incremented on a per Rule Template basis every time the Rule Template is processed.
Collection Interval	5 min
Peg Condition	A Rule Template is invoked during the message processing.
Measurement Scope	Server Group

Recovery

1. Verify that the Rule Template was set to Test or Active state and was assigned to the correct Execution Trigger.
2. Verify the conditions of the Rule Template were properly set and the provisioned routing or/and mediation data matches the incoming message.
3. Verify that Alarm 25000 - Rule Template failed to be updated (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is not raised.

CAPM_CondSet_True

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Mediation Rule Template ID)
Description	Indicates the number of times a condition set has been evaluated to True. This counter is incremented on a per Rule Template basis every time all the conditions of the condition set match.
Collection Interval	5 min
Peg Condition	A Condition Set matches during the message processing.
Measurement Scope	Server Group

Recovery

1. Verify that the Rule Template was set to Test or Active state and was assigned to the correct Execution Trigger.
2. Verify the conditions of the Rule Template were properly set and the provisioned routing or/and mediation data matches the incoming message.
3. Also verify that Alarm 25000 - Rule Template failed to be updated (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is not raised.

CAPM_Action_Set_Fails

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Mediation Rule Template ID)

Description	Indicates the number of times a failure has occurred while executing the action set. This counter is incremented on a per Rule Template basis every time some of the actions fails. **Note:** This counter is incremented only once even if several actions within an action set have failed.
Collection Interval	5 min
Peg Condition	At least one action within an Action Set has failed.
Measurement Scope	Server Group

Recovery

Verify that the actions are set correctly, there are enough system resources to perform the actions, and the actions refer to the part of the incoming message that is available.

CAPM_Match_Rule

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Mediation Rule Template ID)
Description	The array of measurements for pegged rules. An element of the array shows how many times a rule matched on an MP.
Collection Interval	5 min
Peg Condition	Each time the MessageCopy action has been invoked successfully.
Measurement Scope	Server Group

Recovery

No action required.

CAPM_MsgCopyTriggered

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Mediation Rule Template ID)
Description	The number of times the MessageCopy action has been invoked successfully.
Collection Interval	5 min
Peg Condition	Each time the MessageCopy action has been invoked successfully.
Measurement Scope	Server Group

Recovery

No action required.

CAPM_RxRejectWithErrorAnswer

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Transport Connection)
Description	The number of Request messages from a downstream peer rejected by a Local Node when an indication from mediation to send back an error answer is received
Collection Interval	5 min
Peg Condition	When mediation indicates to send back an answer
Measurement Scope	Server Group

Recovery

No action required.

CAPM_RxSilentDiscard

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Transport Connection)
Description	The number of Request messages from a downstream peer silently by a Local Node when an indication from mediation to discard the request is received
Collection Interval	5 min
Peg Condition	When mediation indicates to silently discard the request
Measurement Scope	Server Group

Recovery

No action required.

CAPM_RxRedirectHost

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Connection ID)
Description	The number of times the Request was redirected with the 3006 response sent by Mediation
Collection Interval	5 min

Peg Condition	When the action "Redirect Request-Host" successfully executes
Measurement Scope	Site

Recovery

No action required.

CAPM_RxRedirectRealm

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Connection ID)
Description	The number of times the Request was redirected with the 3011 response sent by Mediation
Collection Interval	5 min
Peg Condition	When the action "Redirect Request-Realm" successfully executes
Measurement Scope	Site

Recovery

No action required.

CAPM_RxProcessNAI

Measurement Group	CAPM
Measurement Type	Simple
Measurement Dimension	Arrayed (by Template Name)
Description	The number of times the Request was modified by the "Process Decorated NAI" Mediation action
Collection Interval	5 min
Peg Condition	When the action "Process Decorated NAI" successfully executes
Measurement Scope	Site

Recovery

No action required.

CAPM_Match_Rule

Measurement Group	CAPM
Measurement Type	Simple

Measurement Dimension	Arrayed (by Mediation Rule Template ID)
Description	The array of measurements for pegged rules. An element of the array shows how many times a rule matched on an MP.
Collection Interval	5 min
Peg Condition	Each time the MessageCopy action has been invoked successfully.
Measurement Scope	Server Group

Recovery

No action required.

Connection Congestion measurements

The Connection Congestion measurement report contains per-connection measurements related to Diameter Connection congestion states. Measurements in this group include:

- Congestion Level-X time duration
- Number of times entered Congestion Level-X
- Number of times Remote Busy Congestion occurred

Table 23: Connection Congestion Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxRejectedConnCongestion	Number of Request messages from a downstream peer rejected by a Local Node because of Diameter Connection Congestion.	5 min

RxRejectedConnCongestion

Measurement Group	Connection Congestion
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Number of Request messages from a downstream peer rejected by a Local Node because of Diameter Connection Congestion.
Collection Interval	5 min
Peg Condition	Each time an ingress transaction is abandoned and the Routing Option Set “Connection Congestion” action is invoked.
Measurement Scope	Site

Recovery

No action required.

Connection Exception measurements

The Connection Exception measurement report contains measurements that provide information about exceptions and unexpected messages and events for individual SCTP/TCP connections that are not specific to the Diameter protocol.

Table 24: Connection Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvRxException	The number of Connection ingress message processing exception events.	5 min
EvTxException	The number of Connection egress message processing exception events.	5 min

EvRxException

Measurement Group Connection Exception

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of connection ingress message processing exception events.

Collection Interval 5 min

Peg Condition This measurement is incremented for each EvRxException event, regardless of event reason or throttling.

Measurement Scope Site

Recovery

No action required.

EvTxException

Measurement Group Connection Exception

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of Connection egress message processing exception events.

Collection Interval	5 min
Peg Condition	This measurement is incremented for each EvTxException event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

Connection Performance measurements

The Connection Performance measurement report contains measurements that provide performance information for individual SCTP/TCP connections that are not specific to the Diameter protocol.

Table 25: Connection Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
DclTxConnQueueAvg	DCL egress connection message queue utilization average.	5 min
DclTxConnQueuePeak	DCL egress connection message queue utilization peak.	5 min
EcCL1	Connection onset for egress message rate in congestion level 1.	5 min
EcCL2	Connection onset for egress message rate in congestion level 2.	5 min
EcCL3	Connection onset for egress message rate in congestion level 3.	5 min
EcCL98	Connection onset for egress message rate in congestion level 98.	5 min
EcRateAvg	Connection egress message rate average.	5 min
EcRatePeak	Connection egress message rate peak.	5 min
Ert	The number of Connection egress messages on routing egress.	5 min
ErtDrop	The number of Connection egress messages discarded or rejected by routing egress.	5 min
Ic	The number of Connection ingress messages.	5 min
IcDrop	The number of Connection ingress messages discarded or rejected by ingress control.	5 min
IcDropP0	The number of Connection ingress messages discarded or rejected by ingress control with priority 0.	5 min

Measurement Tag	Description	Collection Interval
IcDropP1	The number of Connection ingress messages discarded or rejected by ingress control with priority 1.	5 min
IcDropP2	The number of Connection ingress messages discarded or rejected by ingress control with priority 2.	5 min
IcDropP3	The number of Connection ingress messages discarded or rejected by ingress control with priority 3.	5 min
IcRateAvg	Connection ingress message rate average.	5 min
IcRatePeak	Connection ingress message rate peak.	5 min
Irt	The number of Connection ingress messages on routing ingress.	5 min
IrtDrop	The number of Connection ingress messages discarded or rejected by routing ingress.	5 min
OcDrop	The number of Connection ingress messages discarded or rejected by overload control.	5 min
RadiusXactionFailAvg	RADIUS connection transaction failure rate average.	5 min
RxAll	The number of Connection ingress messages (routable and peer-to-peer).	5 min
RxAllDrop	The number of Connection ingress messages dropped (routable and peer-to-peer).	5 min
RxAllLenAvg	Connection ingress message length average (routable and peer-to-peer).	5 min
RxAllLenPeak	Connection ingress message length peak (routable and peer-to-peer).	5 min
RxNgnPsAccepted	Connection ingress NGN-PS messages accepted.	5 min
RxNgnPsOffered	Connection ingress NGN-PS messages offered.	5 min
RxP0	The number of Connection ingress messages with priority 0.	5 min
RxP1	The number of Connection ingress messages with priority 1.	5 min
RxP2	The number of Connection ingress messages with priority 2.	5 min
RxP3	The number of Connection ingress messages with priority 3.	5 min

Measurement Tag	Description	Collection Interval
RxP4	The number of Connection ingress messages with priority 4.	5 min
TmEcCL1	Connection timer for egress message rate in congestion level 1.	5 min
TmEcCL2	Connection timer for egress message rate in congestion level 2.	5 min
TmEcCL3	Connection timer for egress message rate in congestion level 3.	5 min
TmEcCL98	Connection timer for egress message rate in congestion level 98.	5 min
TxAll	The number of Connection egress messages (routable and peer-to-peer).	5 min
TxAllDrop	The number of Connection egress messages dropped (routable and peer-to-peer).	5 min
TxAllLenAvg	Connection egress message length average (routable and peer-to-peer).	5 min
TxAllLenPeak	Connection egress message length peak (routable and peer-to-peer).	5 min
TxP0	The number of Connection egress messages with priority 0.	5 min
TxP1	The number of Connection egress messages with priority 1.	5 min
TxP2	The number of Connection egress messages with priority 2.	5 min
TxP3	The number of Connection egress messages with priority 3.	5 min
TxP4	The number of Connection egress messages with priority 4.	5 min

DclTxConnQueueAvg

Measurement Group	Connection Performance
Measurement Type	Average
Measurement Dimension	Arrayed (Connection ID)
Description	DCL egress connection message queue utilization average.
Collection Interval	5 min
Peg Condition	Output measurement of the DclTxConnQueue metric.

Measurement Scope	Site

Recovery

No action required.

DclTxConnQueuePeak

Measurement Group	Connection Performance
Measurement Type	Max
Measurement Dimension	Arrayed (Connection ID)
Description	DCL egress connection message queue utilization peak.
Collection Interval	5 min
Peg Condition	Output measurement of the DclTxConnQueue metric.
Measurement Scope	Site

Recovery

No action required.

EcCL1

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection onset for egress message rate in congestion level 1.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL1.
Measurement Scope	Site

Recovery

No action required.

EcCL2

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection onset for egress message rate in congestion level 2.

Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL2.
Measurement Scope	Site

Recovery

No action required.

EcCL3

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection onset for egress message rate in congestion level 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL3.
Measurement Scope	Site

Recovery

No action required.

EcCL98

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection onset for egress message rate in congestion level 98.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL98.
Measurement Scope	Site

Recovery

No action required.

EcRateAvg

Measurement Group	Connection Performance

Measurement Type	Average
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection egress message rate average.
Collection Interval	5 min
Peg Condition	Output measurement of the EcRate metric.
Measurement Scope	Site

Recovery

No action required.

EcRatePeak

Measurement Group	Connection Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection egress message rate peak.
Collection Interval	5 min
Peg Condition	Output measurement of the EcRate metric.
Measurement Scope	Site

Recovery

No action required.

Ert

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection egress messages on routing egress.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress message during the Egress Routing phase.
Measurement Scope	Site

Recovery

No action required.

ErtDrop

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of DA-MP egress messages discarded or rejected by routing egress.

Collection Interval 5 min

Peg Condition This measurement is incremented for each egress message dropped during the Routing Egress phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvFsmOpState	StateChange (TransportCongestion)
	EvTxException	ConnUnavailable
DCL	EvTxException	DclTxConnQueueCongested
		DtlsMsgOversized
RCL	MpEvTxException	RclTxTaskQueueCongested
		EtrPoolCongested
		RadiusMsgPoolCongested
		SharedSecretUnavailable
		RadiusIdPoolCongested
	EvTxException	MsgAttrLenUnsupported
		MsgTypeUnsupported
		MsgLenInvalid
		AnsOnClientConn
		ReqDuplicate

Measurement Scope Site

Recovery

No action required.

Ic

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of Connection ingress messages.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message during the Ingress Control phase.

Measurement Scope Site

Recovery

No action required.

IcDrop

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of Connection ingress messages discarded or rejected by ingress control.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Ingress Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

IcDropP0

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description Connection ingress messages discarded or rejected by ingress control with priority 0.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Ingress Control phase with priority 0.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

IcDropP1

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description Connection ingress messages discarded or rejected by ingress control with priority 1.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Ingress Control phase with priority 1.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

IcDropP2

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description Connection ingress messages discarded or rejected by ingress control with priority 2.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Ingress Control phase with priority 2.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

IcDropP3

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description Connection ingress messages discarded or rejected by ingress control with priority 3.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Ingress Control phase with priority 3.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

IcRateAvg

Measurement Group Connection Performance

Measurement Type Average

Measurement Dimension Arrayed (by Connection ID)

Description Connection ingress message rate average.

Collection Interval 5 min

Peg Condition Output measurement of the IcRate metric.

Measurement Scope Site

Recovery

No action required.

IcRatePeak

Measurement Group	Connection Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress message rate peak.
Collection Interval	5 min
Peg Condition	Output measurement of the IcRate metric.
Measurement Scope	Site

Recovery

No action required.

Irt

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress messages on routing ingress.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message during the Ingress Routing phase.
Measurement Scope	Site

Recovery

No action required.

IrtDrop

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection ingress messages discarded or rejected by routing ingress.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message dropped during the Routing Ingress phase. The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	DiamMsgPoolCongested
		SigEvPoolCongested
		DstMpUnknown
		DstMpCongested
		DrlReqQueueCongested
		DrlAnsQueueCongested
		ComAgentCongested
RCL	MpEvRxException	RadiusMsgPoolCongested
		RclRxTaskQueueCongested
		RclSigEvPoolCongested
		SharedSecretUnavailable
		ItrPoolCongested
	EvRxException	MsgAttrLenInvalid
		MsgAttrLenUnsupported
		AnsOrphaned
		AccessAuthMissing
		StatusAuthMissing
		MsgAuthInvalid
		ReqAuthInvalid
		AnsAuthInvalid
		MsgAttrAstUnsupported
		ReqDuplicate
		MsgTypeMissingMccs
		ConnUnavailable

Measurement Scope Site

Recovery

No action required.

OcDrop

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of Connection ingress messages discarded or rejected by overload control.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Overload Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested

Measurement Scope Site

Recovery

No action required.

RadiusXactionFailAvg

Measurement Group Connection Performance

Measurement Type Average

Measurement Dimension Single

Description RADIUS connection transaction failure rate average.

Collection Interval 5 min

Peg Condition The average RADIUS connection transaction failure rate sample taken during the collection interval.

Measurement Scope Site

Recovery

No action required.

RxAll

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of connection ingress messages (routable and peer-to-peer).

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message during the Rx phase (routable and peer-to-peer).

Measurement Scope Site

Recovery

No action required.

RxAllDrop

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection ingress messages dropped (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message dropped during the Rx phase (routable and peer-to-peer). The associated reasons can be found in this table:

Layer	Event	Reason
DCL	EvRxException	MsgInvalid
RCL	EvRxException	MsgTypeUnsupported

Measurement Scope	Site

Recovery

No action required.

RxAllLenAvg

Measurement Group	Connection Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress message length average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is updated for each ingress message during the Rx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

RxAllLenPeak

Measurement Group	Connection Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress message length peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is updated for each ingress message during the Rx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

RxNgnPsAccepted

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress NGN-PS messages accepted.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress NGN-PS message accepted during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

RxNgnPsOffered

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress NGN-PS messages offered.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress NGN-PS message offered during the Message Priority phase.

Measurement Scope	Site

Recovery

No action required.

RxP0

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection ingress messages with priority 0.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 0 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

RxP1

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection ingress messages with priority 1.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 1 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

RxP2

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of Connection ingress messages with priority 2.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 2 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

RxP3

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection ingress messages with priority 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 3 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

RxP4

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress messages with priority 4.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 4 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

RxSctpChunkMp

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of SCTP data chunks received by the MP (excluding duplicates).
Collection Interval	5 min
Peg Condition	SCTP statistics polling.
Measurement Scope	Server Group

Recovery

No action required.

RxSctpPacketMp

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of SCTP packets received by the MP (excluding duplicates).
Collection Interval	5 min
Peg Condition	SCTP statistics polling.
Measurement Scope	Server Group

Recovery

No action required.

TmEcCL1

Measurement Group	Connection Performance
Measurement Type	Timer
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection timer for egress message rate in congestion level 1.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond the connection is in CL1.
Measurement Scope	Site

Recovery

No action required.

TmEcCL2

Measurement Group	Connection Performance
Measurement Type	Timer
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection timer for egress message rate in congestion level 2.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond the connection is in CL2.
Measurement Scope	Site

Recovery

No action required.

TmEcCL3

Measurement Group	Connection Performance
Measurement Type	Timer
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection timer for egress message rate in congestion level 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond the connection is in CL3.
Measurement Scope	Site

Recovery

No action required.

TmEcCL98

Measurement Group	Connection Performance
Measurement Type	Timer
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection timer for egress message rate in congestion level 98.
Collection Interval	5 min

Peg Condition This measurement is incremented for each millisecond the connection is in CL98.

Measurement Scope Site

Recovery

No action required.

TxAll

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of Connection egress messages (routable and peer-to-peer).

Collection Interval 5 min

Peg Condition This measurement is incremented for each egress message during the Tx phase (routable and peer-to-peer).

Measurement Scope Site

Recovery

No action required.

TxAllDrop

Measurement Group Connection Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of Connection egress messages dropped (routable and peer-to-peer).

Collection Interval 5 min

Peg Condition This measurement is incremented for each egress message dropped during the Tx phase (routable and peer-to-peer).

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvFsmOpState	StateChange (TransportCongestion)
	EvTxException	ConnUnavailable
RCL	EvTxException	WriteFailure

Measurement Scope Site

Recovery

No action required.

TxAllLenAvg

Measurement Group	Connection Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection egress message length average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is updated for each egress message during the Tx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

TxAllLenPeak

Measurement Group	Connection Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection egress message length peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is updated for each egress message during the Tx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

TxConnTotalDataChunks

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of total data chunks sent on the SCTP connection.
Collection Interval	5 min

Peg Condition	When data chunks are transmitted on the SCTP connection.
Measurement Scope	Server Group

Recovery

No action required.

TxP0

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection ingress messages with priority 0.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 0 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

TxP1

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection egress messages with priority 1.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress message with priority 1 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

TxP2

Measurement Group	Connection Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection egress messages with priority 2.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress message with priority 2 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

TxP3

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection egress messages with priority 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress message with priority 3 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

TxP4

Measurement Group	Connection Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection egress messages with priority 4.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress message with priority 4 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

Connection Service measurements

Table 26: Connection Service Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvException	The number of connection exception events.	5 min
EvFsmAdState	The number of Connection FSM administrative state change events.	5 min
EvFsmException	The number of Connection FSM exception events.	5 min
EvFsmOpState	The number of Connection FSM operational state change events.	5 min
TmFsmOpStateAvailable	Connection timer for operational state available.	5 min
TmFsmOpStateDegraded	Connection timer for operational state degraded.	5 min
TmFsmOpStateUnavailable	Connection timer for operational state unavailable.	5 min

EvException

Measurement Group Connection Service

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description Connection exception events.

Collection Interval 5 min

Peg Condition This measurement is incremented for each EvException event, regardless of event reason or throttling.

Measurement Scope Site

Recovery

No action required.

EvFsmAdState

Measurement Group Connection Service

Measurement Type Simple

Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection FSM administrative state change events.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each EvFsmAdState event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

EvFsmException

Measurement Group	Connection Service
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection FSM exception events.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each EvFsmException event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

EvFsmOpState

Measurement Group	Connection Service
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection FSM operational state change events.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each EvFsmOpState event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

TmFsmOpStateAvailable

Measurement Group	Connection Service
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection timer for operational state available.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond the connection is operationally available.
Measurement Scope	Site

Recovery

No action required.

TmFsmOpStateDegraded

Measurement Group	Connection Service
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection timer for operational state degraded.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond the connection is operationally degraded.
Measurement Scope	Site

Recovery

No action required.

TmFsmOpStateUnavailable

Measurement Group	Connection Service
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection timer for operational state unavailable.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond the connection is operationally unavailable.
Measurement Scope	Site

Recovery

No action required.

Connection Transport measurements

The Connection Transport measurement report contains measurements that provide performance information that is specific to the DCL at the connection level.

Table 27: Connection Transport Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxBufAvg	Connection ingress buffer utilization average.	5 min
RxBufPeak	Connection ingress buffer utilization peak.	5 min
RxOctets	Connection ingress octets.	5 min
RxSctpChunk	SCTP total chunks on ingress.	5 min
RxSctpDupTsn	The number of SCTP duplicate TSNs on ingress.	5 min
RxSctpGapAck	SCTP gap acknowledgments on ingress.	5 min
RxTcpDupPkt	The number of TCP duplicate packets on ingress.	5 min
TxBufAvg	Connection egress buffer utilization average.	5 min
TxBufPeak	Connection egress buffer utilization peak.	5 min
TxOctets	Connection egress octets.	5 min
TxSctpChunk	SCTP total chunks on egress.	5 min
TxSctpRtxChunk	SCTP retransmitted chunks on egress.	5 min
TxTcpRtxSeg	TCP retransmitted segments on egress.	5 min

RxBufAvg

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	Connection ingress buffer utilization average.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

RxBufPeak

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection ingress buffer utilization peak.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

RxOctets

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection ingress octets.
Collection Interval	5 min
Peg Condition	This measurement is updated for each ingress message during the Rx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

RxSctpChunk

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	SCTP total chunks on ingress.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

RxSctpDupTsn

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	SCTP duplicate TSNs on ingress.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

RxSctpGapAck

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	SCTP gap acknowledgement on ingress.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

RxTcpDupPkt

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	TCP duplicate packets on ingress.

Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

TxBufAvg

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection egress buffer utilization average.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack. **Note:** This measurement is not supported (always zero) for SCTP connections.
Measurement Scope	Site

Recovery

No action required.

TxBufPeak

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Connection egress buffer utilization peak.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack. **Note:** This measurement is not supported (always zero) for SCTP connections.
Measurement Scope	Site

Recovery

No action required.

TxOctets

Measurement Group	Connection Transport

Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Connection egress octets.
Collection Interval	5 min
Peg Condition	This measurement is updated for each egress message during the Tx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

TxSctpChunk

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	SCTP total chunks on egress.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

TxSctpRtxChunk

Measurement Group	Connection Transport
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	SCTP retransmitted chunks on egress.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

TxTcpRtxSeg

Measurement Group	Connection Transport

Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	TCP retransmitted segments on egress.
Collection Interval	5 min
Peg Condition	Output from Linux networking stack.
Measurement Scope	Site

Recovery

No action required.

DA-MP Exception measurements

Table 28: DA-MP Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
MpEvRxException	DA-MP ingress message processing exception events.	5 min
MpEvTxException	DA-MP egress message processing exception events.	5 min

MpEvRxException

Measurement Group	DA-MP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress message processing exception events.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each MpEvRxException event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

MpEvTxException

Measurement Group	DA-MP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress message processing exception events.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each MpEvTxException event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

DA-MP Performance measurements

The DA-MP measurement report contains measurements that provide performance information that is specific to the DCL at the DA-MP level.

Table 29: DA-MP Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
DclTxTaskQueueAvg	DCL egress task message queue utilization average.	5 min
DclTxTaskQueuePeak	DCL egress task message queue utilization peak.	5 min
MpCpuAvg	DA-MP average CPU utilization by Diameter process.	5 min
MpCpuCL1	DA-MP onset for CPU utilization in congestion level 1.	5 min
MpCpuCL2	DA-MP onset for CPU utilization in congestion level 2.	5 min
MpCpuCL3	DA-MP onset for CPU utilization in congestion level 3.	5 min
MpCpuPeak	DA-MP peak CPU utilization by Diameter process.	5 min

Measurement Tag	Description	Collection Interval
MpDiamAnsTimeAvg	Diameter answer message processing time average (ingress to egress).	5 min
MpDiamAnsTimePeak	Diameter answer message processing time peak (ingress to egress).	5 min
MpDiamMsgPoolAvg	DA-MP Diameter message pool utilization average.	5 min
MpDiamMsgPoolPeak	DA-MP Diameter message pool utilization peak.	5 min
MpDiamReqTimeAvg	Diameter request message processing time average (ingress to egress).	5 min
MpDiamReqTimePeak	Diameter request message processing time peak (ingress to egress).	5 min
MpErt	The number of DA-MP egress messages on routing egress.	5 min
MpErtDrop	The number of DA-MP egress messages discarded or rejected by routing egress.	5 min
MpIc	The number of DA-MP ingress messages.	5 min
MpIcDrop	The number of DA-MP ingress messages discarded or rejected by ingress control.	5 min
MpIcP0G	The number of DA-MP ingress messages with priority 0 and color green.	5 min
MpIcP0Y	The number of DA-MP ingress messages with priority 0 and color yellow.	5 min
MpIcP1G	The number of DA-MP ingress messages with priority 1 and color green.	5 min
MpIcP1Y	The number of DA-MP ingress messages with priority 1 and color yellow.	5 min

Measurement Tag	Description	Collection Interval
MpIcP2G	The number of DA-MP ingress messages with priority 2 and color green.	5 min
MpIcP2Y	The number of DA-MP ingress messages with priority 2 and color yellow.	5 min
MpIcP3G	The number of DA-MP ingress messages with priority 3 and color green.	5 min
MpIcP3Y	The number of DA-MP ingress messages with priority 3 and color yellow.	5 min
MpIcP4G	The number of DA-MP ingress messages with priority 4 and color green.	5 min
MpIcP4Y	The number of DA-MP ingress messages with priority 4 and color yellow.	5 min
MpIrt	The number of DA-MP ingress messages on routing ingress.	5 min
MpIrtDrop	The number of DA-MP ingress messages discarded or rejected by routing ingress.	5 min
MpMemCL1	DA-MP onset for memory utilization in congestion level 1.	5 min
MpMemCL2	DA-MP onset for memory utilization in congestion level 2.	5 min
MpMemCL3	DA-MP onset for memory utilization in congestion level 3.	5 min
MpNgnPsXactionFailPeersAvg	DA-MP NGN-PS transaction failure rate by peers average.	5 min
MpNgnPsXactionPassAvg	DA-MP NGN-PS transaction success rate average.	5 min
MpOcDrop	The number of DA-MP ingress messages discarded or rejected by overload control.	5 min
MpOcDropP0G	The number DA-MP ingress messages discarded or rejected by overload control with priority 0 and color green.	5 min

Measurement Tag	Description	Collection Interval
MpOcDropP0Y	The number DA-MP ingress messages discarded or rejected by overload control with priority 0 and color yellow.	5 min
MpOcDropP1G	The number DA-MP ingress messages discarded or rejected by overload control with priority 1 and color green.	5 min
MpOcDropP1Y	The number DA-MP ingress messages discarded or rejected by overload control with priority 1 and color yellow.	5 min
MpOcDropP2G	The number DA-MP ingress messages discarded or rejected by overload control with priority 2 and color green.	5 min
MpOcDropP2Y	The number DA-MP ingress messages discarded or rejected by overload control with priority 2 and color yellow.	5 min
MpOcRateAvgP0	DA-MP ingress message rate average offered to overload control with priority 0.	5 min
MpOcRateAvgP0G	DA-MP ingress message rate average offered to overload control with priority 0 and color green.	5 min
MpOcRateAvgP0Y	DA-MP ingress message rate average offered to overload control with priority 0 and color yellow.	5 min
MpOcRateAvgP1	DA-MP ingress message rate average offered to overload control with priority 1.	5 min
MpOcRateAvgP1G	DA-MP ingress message rate average offered to overload control with priority 1 and color green.	5 min
MpOcRateAvgP1Y	DA-MP ingress message rate average offered to overload control with priority 1 and color yellow.	5 min
MpOcRateAvgP2	DA-MP ingress message rate average offered to overload control with priority 2.	5 min

Measurement Tag	Description	Collection Interval
MpOcRateAvgP2G	DA-MP ingress message rate average offered to overload control with priority 2 and color green.	5 min
MpOcRateAvgP2Y	DA-MP ingress message rate average offered to overload control with priority 2 and color yellow.	5 min
MpOcRateAvgP3	DA-MP ingress message rate average offered to overload control with priority 3.	5 min
MpOcRatePeakP0	DA-MP ingress message rate peak offered to overload control with priority 0.	5 min
MpOcRatePeakP0G	DA-MP ingress message rate peak offered to overload control with priority 0 and color green.	5 min
MpOcRatePeakP0Y	DA-MP ingress message rate peak offered to overload control with priority 0 and color yellow.	5 min
MpOcRatePeakP1	DA-MP ingress message rate peak offered to overload control with priority 1.	5 min
MpOcRatePeakP1G	DA-MP ingress message rate peak offered to overload control with priority 1 and color green.	5 min
MpOcRatePeakP1Y	DA-MP ingress message rate peak offered to overload control with priority 1 and color yellow.	5 min
MpOcRatePeakP2	DA-MP ingress message rate peak offered to overload control with priority 2.	5 min
MpOcRatePeakP2G	DA-MP ingress message rate peak offered to overload control with priority 2 and color green.	5 min
MpOcRatePeakP2Y	DA-MP ingress message rate peak offered to overload control with priority 2 and color yellow.	5 min
MpOcRatePeakP3	DA-MP ingress message rate peak offered to overload control with priority 3.	5 min
MpRadiusAnsTimeAvg	RADIUS answer message processing time average (ingress to egress).	5 min

Measurement Tag	Description	Collection Interval
MpRadiusAnsTimePeak	RADIUS answer message processing time peak (ingress to egress).	5 min
MpRadiusMsgPoolAvg	DA-MP RADIUS message pool utilization average.	5 min
MpRadiusMsgPoolPeak	DA-MP RADIUS message pool utilization peak.	5 min
MpRadiusReqTimeAvg	RADIUS request message processing time average (ingress to egress).	5 min
MpRadiusReqTimePeak	RADIUS request message processing time peak (ingress to egress).	5 min
MpRxAll	DA-MP ingress messages (routable and peer-to-peer).	5 min
MpRxAllDrop	DA-MP ingress messages dropped (routable and peer-to-peer).	5 min
MpRxAllRateAvg	DA-MP ingress message rate peak (routable and peer-to-peer).	5 min
MpRxAllRatePeak	DA-MP ingress message rate peak (routable and peer-to-peer).	5 min
MpRxDiamAll	DA-MP ingress Diameter messages (routable and peer-to-peer).	5 min
MpRxDiamAllLen	DA-MP ingress Diameter message length (routable and peer-to-peer).	5 min
MpRxDiamAllLenAvg	DA-MP ingress Diameter message length average (routable and peer-to-peer).	5 min
MpRxDiamAllLenPeak	DA-MP ingress Diameter message length peak (routable and peer-to-peer).	5 min
MpRxDiamAllRateAvg	DA-MP ingress Diameter message rate average (routable and peer-to-peer).	5 min
MpRxDiamAllRatePeak	DA-MP ingress Diameter message rate peak (routable and peer-to-peer).	5 min
MpRxDiamP0	DA-MP ingress Diameter messages with priority 0.	5 min
MpRxDiamP1	DA-MP ingress Diameter messages with priority 1.	5 min

Measurement Tag	Description	Collection Interval
MpRxDiamP2	DA-MP ingress Diameter messages with priority 2.	5 min
MpRxDiamP3	DA-MP ingress Diameter messages with priority 3.	5 min
MpRxDiamP4	DA-MP ingress Diameter messages with priority 4.	5 min
MpRxNgnPsAccepted	DA-MP ingress NGN-PS messages accepted.	5 min
MpRxNgnPsAcceptedRateAvg	DA-MP ingress NGN-PS messages accepted rate average.	5 min
MpRxNgnPsAcceptedRatePeak	DA-MP ingress NGN-PS messages accepted rate peak.	5 min
MpRxNgnPsOffered	DA-MP ingress NGN-PS messages offered.	5 min
MpRxNgnPsOfferedRateAvg	DA-MP ingress NGN-PS messages offered rate average.	5 min
MpRxNgnPsOfferedRatePeak	DA-MP ingress NGN-PS messages offered rate peak.	5 min
MpRxRadiusAll	DA-MP ingress RADIUS messages (routable and peer-to-peer).	5 min
MpRxRadiusAllLen	DA-MP ingress RADIUS message length (routable and peer-to-peer).	5 min
MpRxRadiusAllLenAvg	DA-MP ingress RADIUS message length average (routable and peer-to-peer).	5 min
MpRxRadiusAllLenPeak	DA-MP ingress RADIUS message length peak (routable and peer-to-peer).	5 min
MpRxRadiusAllRateAvg	DA-MP ingress RADIUS message rate average (routable and peer-to-peer).	5 min
MpRxRadiusAllRatePeak	DA-MP ingress RADIUS message rate peak (routable and peer-to-peer).	5 min
MpRxRadiusP0	DA-MP ingress RADIUS messages with priority 0.	5 min
MpRxRadiusP3	DA-MP ingress RADIUS messages with priority 3.	5 min

Measurement Tag	Description	Collection Interval
MpTxAll	The number of DA-MP egress messages (routable and peer-to-peer).	5 min
MpTxAllDrop	The number of DA-MP egress messages dropped during the Tx phase (routable and peer-to-peer).	5 min
MpTxAllRateAvg	DA-MP egress message rate average (routable and peer-to-peer).	5 min
MpTxAllRatePeak	DA-MP egress message rate peak (routable and peer-to-peer).	5 min
MpTxDiamAll	DA-MP egress Diameter messages (routable and peer-to-peer).	5 min
MpTxDiamAllLen	DA-MP egress Diameter message length (routable and peer-to-peer).	5 min
MpTxDiamAllLenAvg	DA-MP egress Diameter message length average (routable and peer-to-peer).	5 min
MpTxDiamAllLenPeak	DA-MP egress Diameter message length peak (routable and peer-to-peer).	5 min
MpTxDiamAllRateAvg	DA-MP egress Diameter message rate average (routable and peer-to-peer).	5 min
MpTxDiamAllRatePeak	DA-MP egress Diameter message rate peak (routable and peer-to-peer).	5 min
MpTxDiamP0	DA-MP egress Diameter messages with priority 0.	5 min
MpTxDiamP1	DA-MP egress Diameter messages with priority 1.	5 min
MpTxDiamP2	DA-MP egress Diameter messages with priority 2.	5 min
MpTxDiamP3	DA-MP egress Diameter messages with priority 3.	5 min
MpTxDiamP4	DA-MP egress Diameter messages with priority 4.	5 min
MpTxRadiusAll	DA-MP egress RADIUS messages (routable and peer-to-peer).	5 min

Measurement Tag	Description	Collection Interval
MpTxRadiusAllLen	DA-MP egress RADIUS message length (routable and peer-to-peer).	5 min
MpTxRadiusAllLenAvg	DA-MP egress RADIUS message length average (routable and peer-to-peer).	5 min
MpTxRadiusAllLenPeak	DA-MP egress RADIUS message length peak (routable and peer-to-peer).	5 min
MpTxRadiusAllRateAvg	DA-MP egress RADIUS message rate average (routable and peer-to-peer).	5 min
MpTxRadiusAllRatePeak	DA-MP egress RADIUS message rate peak (routable and peer-to-peer).	5 min
MpTxRadiusP0	DA-MP egress RADIUS messages with priority 0.	5 min
MpTxRadiusP1	DA-MP egress RADIUS messages with priority 1.	5 min
MpTxRadiusP2	DA-MP egress RADIUS messages with priority 2.	5 min
MpTxRadiusP3	DA-MP egress RADIUS messages with priority 3.	5 min
MpXactionPassAvg	DA-MP transaction success rate average.	5 min
RclEtrPoolAvg	RCL ETR pool utilization average.	5 min
RclEtrPoolPeak	RCL ETR pool utilization peak.	5 min
RclItrPoolAvg	RCL ITR pool utilization average.	5 min
RclItrPoolPeak	RCL ITR pool utilization peak.	5 min
RclRxTaskQueueAvg	RCL ingress task message queue utilization average.	5 min
RclRxTaskQueuePeak	RCL ingress task message queue utilization peak.	5 min
RclTxTaskQueueAvg	RCL egress task message queue utilization average.	5 min
RclTxTaskQueuePeak	RCL egress task message queue utilization peak.	5 min
TmMpCpuCL1	DA-MP timer for CPU utilization in congestion level 1.	5 min

Measurement Tag	Description	Collection Interval
TmMpCpuCL2	DA-MP timer for CPU utilization in congestion level 2.	5 min
TmMpCpuCL3	DA-MP timer for CPU utilization in congestion level 3.	5 min
TmMpMemCL1	DA-MP timer for memory utilization in congestion level 1.	5 min
TmMpMemCL2	DA-MP timer for memory utilization in congestion level 2.	5 min
TmMpMemCL3	DA-MP timer for memory utilization in congestion level 3.	5 min
TmRclEtrHoldTimeAvg	RCL ETR hold time average.	5 min
TmRclItrHoldTimeAvg	RCL ITR hold time average.	5 min

DclTxTaskQueueAvg

Measurement Group DA-MP Performance

Measurement Type Average

Measurement Dimension Single

Description DCL egress task message queue utilization average.

Collection Interval 5 min

Peg Condition Output measurement of the DclTxTaskQueue metric.

Measurement Scope Site

Recovery

No action required.

DclTxTaskQueuePeak

Measurement Group DA-MP Performance

Measurement Type Max

Measurement Dimension Single

Description DCL egress task message queue utilization peak.

Collection Interval 5 min

Peg Condition Output measurement of the DclTxTaskQueue metric.

Measurement Scope Site

Recovery

No action required.

MpCpuAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP average CPU utilization by Diameter process.
Collection Interval	5 min
Peg Condition	Output measurement of the dsr.Cpu metric.
Measurement Scope	Site

Recovery

No action required.

MpCpuCL1

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP onset for CPU utilization in congestion level 1.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL1.
Measurement Scope	Site

Recovery

No action required.

MpCpuCL2

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP onset for CPU utilization in congestion level 2.
Collection Interval	5 min

Peg Condition	This measurement is incremented for each onset of CL2.
Measurement Scope	Site

Recovery

No action required.

MpCpuCL3

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP onset for CPU utilization in congestion level 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL3.
Measurement Scope	Site

Recovery

No action required.

MpCpuPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP peak CPU utilization by Diameter process.
Collection Interval	5 min
Peg Condition	Output measurement of the dsr.Cpu metric.
Measurement Scope	Site

Recovery

No action required.

MpDiamAnsTimeAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single

Description	Diameter answer message processing time average (ingress to egress).
Collection Interval	5 min
Peg Condition	Updated for each egress Diameter answer message during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpDiamAnsTimePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Diameter answer message processing time peak (ingress to egress).
Collection Interval	5 min
Peg Condition	Updated for each egress Diameter answer message during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpDiamMsgPoolAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP Diameter message pool utilization average.
Collection Interval	5 min
Peg Condition	Output measurement of the MpDiamMsgPool metric.
Measurement Scope	Site

Recovery

No action required.

MpDiamMsgPoolPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP Diameter message pool utilization peak.
Collection Interval	5 min
Peg Condition	Output measurement of the MpDiamMsgPool metric.
Measurement Scope	Site

Recovery

No action required.

MpDiamReqTimeAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Diameter request message processing time average (ingress to egress).
Collection Interval	5 min
Peg Condition	Updated for each egress Diameter request message during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpDiamReqTimePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Diameter request message processing time peak (ingress to egress).
Collection Interval	5 min
Peg Condition	Updated for each egress Diameter request message during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpErt

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress messages on routing egress.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress message during the Egress Routing phase.
Measurement Scope	Site

Recovery

No action required.

MpErtDrop

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress messages discarded or rejected by routing egress.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress message dropped during the Routing Egress phase. The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvTxException	ConnUnknown
	EvFsmOpState	StateChange (TransportCongestion)
	EvTxException	ConnUnavailable
DCL	MpEvTxException	DclTxTaskQueueCongested
	EvTxException	DclTxConnQueueCongested
		DtlsMsgOversized
RCL	MpEvTxException	RclTxTaskQueueCongested
		EtrPoolCongested

Layer	Event	Reason
		RadiusMsgPoolCongested
		SharedSecretUnavailable
		RadiusIdPoolCongested
	EvTxException	MsgAttrLenUnsupported
		MsgTypeUnsupported
		MsgLenInvalid
		AnsOnClientConn
		ReqDuplicate

Measurement Scope Site

Recovery

No action required.

MpIc

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message during the Ingress Control phase.

Measurement Scope Site

Recovery

No action required.

MpIcDrop

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages discarded or rejected by ingress control.

Collection Interval 5 min

Peg Condition

This measurement is incremented for each ingress message dropped during the Ingress Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	MaxMpsExceeded
	EvRxException	MaxMpsExceeded

Measurement Scope

Site

Recovery

No action required.

MpIcP0G

Measurement Group

DA-MP Performance

Measurement Type

Simple

Measurement Dimension

Single

Description

The number of DA-MP ingress messages with priority 0 and color green.

Collection Interval

5 min

Peg Condition

This measurement is incremented for each ingress message with priority 0 and color green during the Ingress Control phase.

Measurement Scope

Site

Recovery

No action required.

MpIcP0Y

Measurement Group

DA-MP Performance

Measurement Type

Simple

Measurement Dimension

Single

Description

The number of DA-MP ingress messages with priority 0 and color yellow.

Collection Interval

5 min

Peg Condition

This measurement is incremented for each ingress message with priority 0 and color yellow during the Ingress Control phase.

Measurement Scope

Site

Recovery

No action required.

MpIcP1G

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress messages with priority 1 and color green.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 1 and color green during the Ingress Control phase.
Measurement Scope	Site

Recovery

No action required.

MpIcP1Y

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress messages with priority 1 and color yellow.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 1 and color yellow during the Ingress Control phase.
Measurement Scope	Site

Recovery

No action required.

MpIcP2G

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of DA-MP ingress messages with priority 2 and color green.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 2 and color green during the Ingress Control phase.
Measurement Scope	Site

Recovery

No action required.

MpIcP2Y

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress messages with priority 2 and color yellow.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 2 and color yellow during the Ingress Control phase.
Measurement Scope	Site

Recovery

No action required.

MpIcP3G

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress messages with priority 3 and color green.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 3 and color green during the Ingress Control phase.
Measurement Scope	Site

Recovery

No action required.

MpIcP3Y

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress messages with priority 3 and color yellow.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 3 and color yellow during the Ingress Control phase.
Measurement Scope	Site

Recovery

No action required.

MpIcP4G

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress messages with priority 4 and color green.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message with priority 4 and color green during the Ingress Control phase.
Measurement Scope	Site

Recovery

No action required.

MpIcP4Y

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress messages with priority 4 and color yellow.
Collection Interval	5 min

Peg Condition This measurement is incremented for each ingress message with priority 4 and color yellow during the Ingress Control phase.

Measurement Scope Site

Recovery

No action required.

MpIrt

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages on routing ingress.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message during the Routing Ingress phase.

Measurement Scope Site

Recovery

No action required.

MpIrtDrop

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages discarded or rejected by routing ingress.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Routing Ingress phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	DiamMsgPoolCongested
		SigEvPoolCongested
		DstMpUnknown
		DstMpCongested

Layer	Event	Reason
		DrlReqQueueCongested
		DrlAnsQueueCongested
		ComAgentCongested
RCL	MpEvRxException	RadiusMsgPoolCongested
		RclRxTaskQueueCongested
		RclSigEvPoolCongested
		SharedSecretUnavailable
		ItrPoolCongested
	EvRxException	MsgAttrLenInvalid
		MsgAttrLenUnsupported
		AnsOrphaned
		AccessAuthMissing
		StatusAuthMissing
		MsgAuthInvalid
		ReqAuthInvalid
		AnsAuthInvalid
		MsgAttrAstUnsupported
		ReqDuplicate
		MsgTypeMissingMccs
		ConnUnavailable

Measurement Scope Site

Recovery

No action required.

MpMemCL1

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description DA-MP onset for memory utilization in congestion level 1.

Collection Interval 5 min

Peg Condition	This measurement is incremented for each onset of CL1.
Measurement Scope	Site

Recovery

No action required.

MpMemCL2

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP onset for memory utilization in congestion level 2.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL2.
Measurement Scope	Site

Recovery

No action required.

MpMemCL3

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP onset for memory utilization in congestion level 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each onset of CL3.
Measurement Scope	Site

Recovery

No action required.

MpNgnPsXactionFailPeersAvg

Measurement Group	DA-MP Performance
Measurement Type	Average

Measurement Dimension	Single
Description	DA-MP NGN-PS transaction failure rate by peers average.
Collection Interval	5 min
Peg Condition	Placeholder measurement of the MpNgnPsXactionFailPeers metric. This metric is the ratio of the number of non-2xx NGN-PS Answers received from Peer / Number of NGN-PS messages Accepted by DSR.
Measurement Scope	Site

Recovery

No action required.

MpNgnPsXactionPassAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP NGN-PS transaction success rate average.
Collection Interval	5 min
Peg Condition	Placeholder measurement of the MpNgnPsXactionPass metric. This metric is the ratio of the number of 2xx NGN-PS Answers sent to Peer/Number of NGN-PS messages Accepted by DSR.
Measurement Scope	Site

Recovery

No action required.

MpOcDrop

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress messages discarded or rejected by overload control.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress message dropped during the Overload Control phase. The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested
	MpEvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

MpOcDropP0G

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages discarded or rejected by overload control with priority 0 and color green.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped with priority 0 and color green during the Overload Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested
	MpEvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

MpOcDropP0Y

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages discarded or rejected by overload control with priority 0 and color yellow.

Collection Interval 5 min

Peg Condition

This measurement is incremented for each ingress message dropped with priority 0 and color yellow during the Overload Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested
	MpEvRxException	MaxMpsExceeded

Measurement Scope

Site

Recovery

No action required.

MpOcDropP1G

Measurement Group

DA-MP Performance

Measurement Type

Simple

Measurement Dimension

Single

Description

The number of DA-MP ingress messages discarded or rejected by overload control with priority 1 and color green.

Collection Interval

5 min

Peg Condition

This measurement is incremented for each ingress message dropped with priority 1 and color green during the Overload Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested
	MpEvRxException	MaxMpsExceeded

Measurement Scope

Site

Recovery

No action required.

MpOcDropP1Y

Measurement Group

DA-MP Performance

Measurement Type

Simple

Measurement Dimension

Single

Description The number of DA-MP ingress messages discarded or rejected by overload control with priority 1 and color yellow.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped with priority 1 and color yellow during the Overload Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested
	MpEvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

MpOcDropP2G

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages discarded or rejected by overload control with priority 2 and color green.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped with priority 2 and color green during the Overload Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested
	MpEvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

MpOcDropP2Y

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages discarded or rejected by overload control with priority 2 and color yellow.

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped with priority 2 and color yellow during the Overload Control phase.

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	MpEvRxException	CpuCongested
	MpEvRxException	MaxMpsExceeded

Measurement Scope Site

Recovery

No action required.

MpOcRateAvgP0

Measurement Group DA-MP Performance

Measurement Type Average

Measurement Dimension Single

Description DA-MP ingress message rate average offered to overload control with priority 0.

Collection Interval 5 min

Peg Condition Output measurement of the MpOcRateP0 metric.

Measurement Scope Site

Recovery

No action required.

MpOcRateAvgP0G

Measurement Group DA-MP Performance

Measurement Type Average

Measurement Dimension Single

Description DA-MP ingress message rate average offered to overload control with priority 0 and color green.

Collection Interval 5 min

Peg Condition	Output measurement of the MpOcRateP0G metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP0Y

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress message rate average offered to overload control with priority 0 and color yellow.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP0Y metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP1

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress message rate average offered to overload control with priority 1.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP1 metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP1G

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress message rate average offered to overload control with priority 1 and color green.

Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP1G metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP1Y

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress message rate average offered to overload control with priority 1 and color yellow.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP1Y metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP2

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress message rate average offered to overload control with priority 2.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP2 metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP2G

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single

Description	DA-MP ingress message rate average offered to overload control with priority 2 and color green.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP2G metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP2Y

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress message rate average offered to overload control with priority 2 and color yellow.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP2Y metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRateAvgP3

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress message rate average offered to overload control with priority 3.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP3 metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP0

Measurement Group	DA-MP Performance
Measurement Type	Max

Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 0.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP0 metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP0G

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 0 and color green.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP0G metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP0Y

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 0 and color yellow.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP0Y metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP1

Measurement Group	DA-MP Performance

Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 1.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP1 metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP1G

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 1 and color green.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP1G metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP1Y

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 1 and color yellow.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP1Y metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP2

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 2.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP2 metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP2G

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 2 and color green.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP2G metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP2Y

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 2 and color yellow.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP2Y metric.
Measurement Scope	Site

Recovery

No action required.

MpOcRatePeakP3

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak offered to overload control with priority 3.
Collection Interval	5 min
Peg Condition	Output measurement of the MpOcRateP3 metric.
Measurement Scope	Site

Recovery

No action required.

MpRadiusAnsTimeAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RADIUS answer message processing time average (ingress to egress).
Collection Interval	5 min
Peg Condition	This measurement is pegged when a routable RADIUS Response message is sent to a RADIUS Peer Node on a connection. The DSR holding time starts when a Signaling-Data Stack Event is initially allocated for the message and the stop time occurs when the message is sent on a socket.
Measurement Scope	Site

Recovery

No action required.

MpRadiusAnsTimePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	RADIUS answer message processing time peak (ingress to egress).

Collection Interval	5 min
Peg Condition	This measurement is pegged when the hold time of a routable RADIUS Response message sent to a RADIUS Peer Node on a connection is larger than any other message sent to a RADIUS Peer Node hold time during the reporting interval. The DSR holding time starts when a Signaling-Data Stack Event is initially allocated for the message and the stop time occurs when the message is sent on a socket.
Measurement Scope	Site

Recovery

No action required.

MpRadiusMsgPoolAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP RADIUS message pool utilization average.
Collection Interval	5 min
Peg Condition	The average of all RADIUS PDU Buffer Pool utilization samples taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

MpRadiusMsgPoolPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP RADIUS message pool utilization peak.
Collection Interval	5 min
Peg Condition	The maximum RADIUS PDU Buffer Pool utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

MpRadiusReqTimeAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RADIUS request message processing time average (ingress to egress).
Collection Interval	5 min
Peg Condition	This measurement is pegged when a routable RADIUS Request message is sent to a RADIUS Peer Node on a connection. The DSR holding time starts when a Signaling-Data Stack Event is initially allocated for the message and the stop time occurs when the message is sent on a socket.
Measurement Scope	Site

Recovery

No action required.

MpRadiusReqTimePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	RADIUS request message processing time peak (ingress to egress).
Collection Interval	5 min
Peg Condition	This measurement is pegged when the hold time of a routable RADIUS Request message sent to a RADIUS Peer Node on a connection is larger than any other message sent to a RADIUS Peer Node hold time during the reporting interval. The DSR holding time starts when a Signaling-Data Stack Event is initially allocated for the message and the stop time occurs when the message is sent on a socket.
Measurement Scope	Site

Recovery

No action required.

MpRxAll

Measurement Group	DA-MP Performance
Measurement Type	Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages (routable and peer-to-peer).

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message during the Rx phase (routable and peer-to-peer).

Measurement Scope Site

Recovery

No action required.

MpRxAllDrop

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP ingress messages dropped (routable and peer-to-peer).

Collection Interval 5 min

Peg Condition This measurement is incremented for each ingress message dropped during the Rx phase (routable and peer-to-peer).

The associated reasons can be found in this table:

Layer	Event	Reason
DCL	EvRxException	MsgInvalid
RCL	MpEvRxException	MsgMalformed
		PeerUnknown
		RadiusMsgPoolCongested

Measurement Scope Site

Recovery

No action required.

MpRxAllRateAvg

Measurement Group DA-MP Performance

Measurement Type Average

Measurement Dimension Single

Description	DA-MP ingress message rate average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxAllRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress message rate peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxDiamAll

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress Diameter messages (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Incremented for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

MpRxDiamAllLen

Measurement Group	DA-MP Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Bucket)
Description	DA-MP ingress Diameter message length (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Updated for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

MpRxDiamAllLenAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress Diameter message length (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Updated for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

MpRxDiamAllLenPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress Diameter message length (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Updated for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

MpRxDiamAllRateAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress Diameter message rate average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxDiamAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxDiamAllRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress Diameter message rate peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxDiamAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxDiamP0

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress Diameter messages with priority 0.
Collection Interval	5 min
Peg Condition	Incremented for each ingress Diameter message with priority 0 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

MpRxDiamP1

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress Diameter messages with priority 1.
Collection Interval	5 min
Peg Condition	Incremented for each ingress Diameter message with priority 1 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

MpRxDiamP2

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress Diameter messages with priority 2.
Collection Interval	5 min
Peg Condition	Incremented for each ingress Diameter message with priority 2 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

MpRxDiamP3

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress Diameter messages with priority 3.
Collection Interval	5 min
Peg Condition	Incremented for each ingress Diameter message with priority 3 during the Message Priority phase.

Measurement Scope	Site

Recovery

No action required.

MpRxDiamP4

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress Diameter messages with priority 4.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress Diameter message with priority 4 during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

MpRxNgnPsAccepted

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress NGN-PS messages accepted.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each ingress NGN-PS message accepted during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

MpRxNgnPsAcceptedRateAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single

Description	DA-MP ingress NGN-PS messages accepted rate average.
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxNgnPsAcceptedRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxNgnPsAcceptedRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by DA-MP)
Description	DA-MP ingress NGN-PS messages accepted rate peak.
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxNgnPsAcceptedRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxNgnPsOffered

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP ingress NGN-PS messages offered.
Collection Interval	5 min
Peg Condition	Incremented for each ingress NGN-PS message offered during the Message Priority phase.
Measurement Scope	Site

Recovery

No action required.

MpRxNgnPsOfferedRateAvg

Measurement Group	DA-MP Performance

Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress NGN-PS messages offered rate average.
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxNgnPsOfferedRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxNgnPsOfferedRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by DA-MP)
Description	DA-MP ingress NGN-PS messages offered rate peak.
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxNgnPsOfferedRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusAll

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress RADIUS messages (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message is received from a RADIUS Peer Node on a connection.
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusAllLen

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Bucket ID)
Description	DA-MP ingress RADIUS message length (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged immediately after reading a RADIUS message from a RADIUS connection socket and prior to any further processing. **Note:** Each bucket in the array contains the number of PDUs whose RADIUS payload octets fell within the bucket's range during the measurement period. [0] = less than 512 octets [1] = 512 to 1023 octets [2] = 1024 to 1535 octets [3] = 1536 to 2047 octets [4] = 2048 to 2559 octets [5] = 2560 to 3071 octets [6] = 3072 to 3583 octets [7] = 3584 to 4096 octets
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusAllLenAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress RADIUS message length average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged immediately after reading a RADIUS message from a RADIUS connection socket and prior to any further processing.
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusAllLenPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP ingress RADIUS message length peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged immediately after reading a RADIUS message from a RADIUS connection socket and prior to any further processing. The measurement is pegged when the size of the RADIUS message received from any RADIUS Peer Node on a connection is larger than any other message received from any RADIUS Peer Node during the reporting interval.
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusAllRateAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP ingress RADIUS message rate average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxRadiusAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusAllRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single

Description	DA-MP ingress RADIUS message rate peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpRxRadiusAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusP0

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress RADIUS messages with priority 0.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message is received from any RADIUS Peer Node on a connection which is assigned a priority of 0.
Measurement Scope	Site

Recovery

No action required.

MpRxRadiusP3

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP ingress RADIUS messages with priority 3.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message is received from any RADIUS Peer Node on a connection which is assigned a priority of 3.
Measurement Scope	Site

Recovery

No action required.

MpTxAll

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP egress messages (routable and peer-to-peer).

Collection Interval 5 min

Peg Condition This measurement is incremented for each egress message during the Tx phase (routable and peer-to-peer).

Measurement Scope Site

Recovery

No action required.

MpTxAllDrop

Measurement Group DA-MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of DA-MP egress messages dropped (routable and peer-to-peer).

Collection Interval 5 min

Peg Condition This measurement is incremented for each egress message dropped during the Tx phase (routable and peer-to-peer).

The associated reasons can be found in this table:

Layer	Event	Reason
CSL	EvFsmOpState	StateChange (TransportCongestion)
	EvTxException	ConnUnavailable
RCL	EvTxException	WriteFailure

Measurement Scope Site

Recovery

No action required.

MpTxAllRateAvg

Measurement Group DA-MP Performance

Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP egress message rate average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpTxAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpTxAllRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP egress message rate peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpTxAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpTxDiamAll

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP egress Diameter messages (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Incremented for each egress Diameter message during the Tx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

MpTxDiamAllLen

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Bucket)
Description	DA-MP egress Diameter message length (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Updated for each egress Diameter message during the Tx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

MpTxDiamAllLenAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP egress Diameter message length (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Updated for each egress Diameter message during the Tx phase (routable and peer-to-peer).
Measurement Scope	Site

Recovery

No action required.

MpTxDiamAllLenPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP egress Diameter message length peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Updated for each egress Diameter message during the Tx phase (routable and peer-to-peer).

Measurement Scope	Site

Recovery

No action required.

MpTxDiamAllRateAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP egress Diameter message rate average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpTxDiamAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpTxDiamAllRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP egress Diameter message rate peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpTxDiamAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpTxDiamP0

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP egress Diameter messages with priority 0.

Collection Interval	5 min
Peg Condition	Incremented for each egress Diameter message with priority 0 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpTxDiamP1

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP egress Diameter messages with priority 1.
Collection Interval	5 min
Peg Condition	Incremented for each egress Diameter message with priority 1 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpTxDiamP2

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP egress Diameter messages with priority 2.
Collection Interval	5 min
Peg Condition	Incremented for each egress Diameter message with priority 2 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpTxDiamP3

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single

Description	DA-MP egress Diameter messages with priority 3.
Collection Interval	5 min
Peg Condition	Incremented for each egress Diameter message with priority 3 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpTxDiamP4

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP egress Diameter messages with priority 4.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each egress Diameter message with priority 4 during the Tx phase.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusAll

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress RADIUS messages (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message is sent to a RADIUS Peer Node on a connection.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusAllLen

Measurement Group	DA-MP Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Bucket ID)
Description	DA-MP ingress RADIUS message length (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged when a routable RADIUS message is sent to any RADIUS Peer Node on a connection. **Note:** Each bucket in the array contains the number of PDUs whose RADIUS payload octets fell within the bucket's range during the measurement period. [0] = less than 512 octets [1] = 512 to 1023 octets [2] = 1024 to 1535 octets [3] = 1536 to 2047 octets [4] = 2048 to 2559 octets [5] = 2560 to 3071 octets [6] = 3072 to 3583 octets [7] = 3584 to 4096 octets
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusAllLenAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP egress RADIUS message length average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged when a routable RADIUS message is sent to a RADIUS Peer Node on a connection.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusAllLenPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP egress RADIUS message length peak (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	This measurement is pegged when the size of a routable RADIUS message sent to a RADIUS Peer Node on a connection is larger than any other message sent to a RADIUS Peer Node during the reporting interval.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusAllRateAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP egress RADIUS message rate average (routable and peer-to-peer).
Collection Interval	5 min
Peg Condition	Output measurement of the MpTxRadiusAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusAllRatePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	DA-MP egress RADIUS message rate peak (routable and peer-to-peer).
Collection Interval	5 min

Peg Condition	Output measurement of the MpTxRadiusAllRate metric.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusP0

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress RADIUS messages with priority 0.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message assigned a priority of 0 is sent to any RADIUS Peer Node on a connection.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusP1

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress RADIUS messages with priority 1.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message assigned a priority of 1 is sent to any RADIUS Peer Node on a connection.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusP2

Measurement Group	DA-MP Performance

Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress RADIUS messages with priority 2.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message assigned a priority of 2 is sent to any RADIUS Peer Node on a connection.
Measurement Scope	Site

Recovery

No action required.

MpTxRadiusP3

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP egress RADIUS messages with priority 3.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a RADIUS message assigned a priority of 3 is sent to any RADIUS Peer Node on a connection.
Measurement Scope	Site

Recovery

No action required.

MpXactionPassAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	DA-MP transaction success rate average.
Collection Interval	5 min
Peg Condition	Placeholder measurement of the MpXactionPass metric.
Measurement Scope	Site

Recovery

No action required.

RclEtrPoolAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RCL ETR pool utilization average.
Collection Interval	5 min
Peg Condition	The average of all RADIUS ETR Pool utilization samples taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RclEtrPoolPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	RCL ETR pool utilization peak.
Collection Interval	5 min
Peg Condition	The maximum RADIUS ETR Pool utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RclItrPoolAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RCL ITR pool utilization average.
Collection Interval	5 min
Peg Condition	The average of all RADIUS ITR Pool utilization samples taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RclItrPoolPeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	RCL ITR pool utilization peak.
Collection Interval	5 min
Peg Condition	The maximum RADIUS ITR Pool utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RclRxTaskQueueAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RCL ingress task message queue utilization average.
Collection Interval	5 min
Peg Condition	The average of all RADIUS Ingress Message Queue utilization samples taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RclRxTaskQueuePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	RCL ingress task message queue utilization peak.
Collection Interval	5 min
Peg Condition	The maximum RADIUS Ingress Message Queue utilization sample taken during the collection interval.

Measurement Scope	Site

Recovery

No action required.

RclTxTaskQueueAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RCL egress task message queue utilization average.
Collection Interval	5 min
Peg Condition	The average of all RADIUS Egress Message Queue utilization samples taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RclTxTaskQueuePeak

Measurement Group	DA-MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	RCL egress task message queue utilization peak.
Collection Interval	5 min
Peg Condition	The maximum RADIUS Egress Message Queue utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

TmMpCpuCL1

Measurement Group	DA-MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	DA-MP onset for CPU utilization in congestion level 1.
Collection Interval	5 min

Peg Condition	This measurement is incremented for each onset of CL1.
Measurement Scope	Site

Recovery

No action required.

TmMpCpuCL2

Measurement Group	DA-MP Performance
Measurement Type	Timer
Measurement Dimension	Single
Description	DA-MP timer for CPU utilization in congestion level 2.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond CPU utilization is in CL2.
Measurement Scope	Site

Recovery

No action required.

TmMpCpuCL3

Measurement Group	DA-MP Performance
Measurement Type	Timer
Measurement Dimension	Single
Description	DA-MP timer for CPU utilization in congestion level 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond CPU utilization is in CL3.
Measurement Scope	Site

Recovery

No action required.

TmMpMemCL1

Measurement Group	DA-MP Performance
Measurement Type	Timer

Measurement Dimension	Single
Description	DA-MP timer for memory utilization in congestion level 1.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond memory utilization is in CL1.
Measurement Scope	Site

Recovery

No action required.

TmMpMemCL2

Measurement Group	DA-MP Performance
Measurement Type	Timer
Measurement Dimension	Single
Description	DA-MP timer for memory utilization in congestion level 2.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond memory utilization is in CL2.
Measurement Scope	Site

Recovery

No action required.

TmMpMemCL3

Measurement Group	DA-MP Performance
Measurement Type	Timer
Measurement Dimension	Single
Description	DA-MP timer for memory utilization in congestion level 3.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each millisecond memory utilization is in CL3.
Measurement Scope	Site

Recovery

No action required.

TmRclEtrHoldTimeAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RCL ETR hold time average.
Collection Interval	5 min
Peg Condition	The average RADIUS ETR hold time sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

TmRclItrHoldTimeAvg

Measurement Group	DA-MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	RCL ITR hold time average.
Collection Interval	5 min
Peg Condition	The average RADIUS ITR hold time sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

DA-MP Service measurements

Table 30: DA-MP Service Measurement Report Fields

Measurement Tag	Description	Collection Interval
MpEvException	The number of DA-MP exception events.	5 min
MpEvFsmException	The number of DA-MP connection FSM exception events.	5 min

MpEvException

Measurement Group	DA-MP Service
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP exception events.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each MpEvException event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

MpEvFsmException

Measurement Group	DA-MP Service
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DA-MP connection FSM exception events.
Collection Interval	5 min
Peg Condition	This measurement is incremented for each MpEvFsmException event, regardless of event reason or throttling.
Measurement Scope	Site

Recovery

No action required.

DCA Custom measurement templates

The DCA Framework allows for the creation of customized measurement reports with the use of templates. The DCA Custom measurement templates are presented in their differentiated form.

Table 31: DCA Custom Measurement Templates

Measurement Template Name	Description	Collection Interval
Arrayed Average Measurement (DcaCustomMeal.name + Avg)	Average value of *DcaCustomMeal.name* per second	5 min
Arrayed Measurement (DcaCustomMeal.name + Cnt)	*DcaCustomMeal.name* measurement	5 min
Arrayed Peak Measurement (DcaCustomMeal.name + Peak)	Peak value of *DcaCustomMeal.name* per second	5 min
Scalar Average Measurement (DcaCustomMeal.name + Avg)	Average value of *DcaCustomMeal.name* per second	5 min
Scalar Measurement (DcaCustomMeal.name + Cnt)	*DcaCustomMeal.name* measurement	5 min
Scalar Peak Measurement (DcaCustomMeal.name + Peak)	Peak value of *DcaCustomMeal.name* per second	5 min

Arrayed Average Measurement (DcaCustomMeal.name + Avg)

Measurement Group	DCA concatenated with the *DcaDalId.shortName* of the DCA App the Custom MEAL is assigned to
Measurement Type	Average
Measurement Dimension	Arrayed
Description	Average value of *DcaCustomMeal.name* per second
Collection Interval	5 min
Peg Condition	This measurement is pegged via the Custom MEAL API.
Measurement Scope	Server Group

Arrayed Measurement (DcaCustomMeal.name + Cnt)

Measurement Group	DCA concatenated with the *DcaDalId.shortName* of the DCA App the Custom MEAL is assigned to
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	*DcaCustomMeal.name* measurement
Collection Interval	5 min
Peg Condition	This measurement is pegged via the Custom MEAL API.
Measurement Scope	Server Group

Arrayed Peak Measurement (DcaCustomMeal.name + Peak)

Measurement Group	DCA concatenated with the *DcaDalId.shortName* of the DCA App the Custom MEAL is assigned to
Measurement Type	Max
Measurement Dimension	Arrayed
Description	Peak value of *DcaCustomMeal.name* per second
Collection Interval	5 min
Peg Condition	This measurement is pegged via the Custom MEAL API.
Measurement Scope	Server Group

Scalar Average Measurement (DcaCustomMeal.name + Avg)

Measurement Group	DCA concatenated with the *DcaDalId.shortName* of the DCA App the Custom MEAL is assigned to
Measurement Type	Average
Measurement Dimension	Single
Description	Average value of *DcaCustomMeal.name* per second
Collection Interval	5 min
Peg Condition	This measurement is pegged via the Custom MEAL API.
Measurement Scope	Server Group

Scalar Measurement (DcaCustomMeal.name + Cnt)

Measurement Group	DCA concatenated with the *DcaDalId.shortName* of the DCA App the Custom MEAL is assigned to
Measurement Type	Simple
Measurement Dimension	Single
Description	*DcaCustomMeal.name* measurement
Collection Interval	5 min
Peg Condition	This measurement is pegged via the Custom MEAL API.
Measurement Scope	Server Group

Scalar Peak Measurement (DcaCustomMeal.name + Peak)

Measurement Group	DCA concatenated with the *DcaDalId.shortName* of the DCA App the Custom MEAL is assigned to
Measurement Type	Max

Measurement Dimension	Single
Description	Peak value of *DcaCustomMeal.name* per second
Collection Interval	5 min
Peg Condition	This measurement is pegged via the Custom MEAL API.
Measurement Scope	Server Group

DCA Framework Exception measurements

The DCA Framework Exception measurement report contains measurements that provide information about exceptions and unexpected messages and events that are specific to the DCA Framework.

Table 32: DCA Framework Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxDcaFullDRLAnswerDiscard	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full, counted during a collection interval.	5 min
TxDcaFullDRLRequestReject	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full, counted during a collection interval.	5 min
TxDcaSbrQueryFailCount	The total number of SBR query send errors, counted during the collection interval.	5 min
TxDcaSbrQueryFailRateAvg	The average DSR Application's SBR Query Fail Rate, measured during the collection interval.	5 min
TxDcaSbrQueryFailRatePeak	The peak DSR Application's SBR Query Fail Rate, measured during the collection interval.	5 min

TxDcaFullDRLAnswerDiscard

Measurement Group	DCA Framework Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full, counted during a collection interval.
Collection Interval	5 min

Peg Condition	This measurement is pegged for each Answer message discarded because the DRL's Answer Queue was full.
Measurement Scope	Server Group

Recovery

No action required.

TxDcaFullDRLRequestReject

Measurement Group	DCA Framework Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full, counted during a collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged for each Request message discarded because the DRL's Request Queue was full.
Measurement Scope	Server Group

Recovery

No action required.

TxDcaSbrQueryFailCount

Measurement Group	DCA Framework Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The total number of SBR query send errors, counted during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged each time sending a Stack Event to the U-SBR fails.
Measurement Scope	Server Group

Recovery

No action required.

TxDcaSbrQueryFailRateAvg

Measurement Group	DCA Framework Exception
Measurement Type	Average

Measurement Dimension	Arrayed (by DcaDalId)
Description	The average DSR Application's SBR Query Fail Rate, measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of the U-SBR query send failure samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

TxDcaSbrQueryFailRatePeak

Measurement Group	DCA Framework Exception
Measurement Type	Max
Measurement Dimension	Arrayed (by DcaDalId)
Description	The peak DSR Application's SBR Query Fail Rate, measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum number of the U-SBR query send failure samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

DCA Framework Performance measurements

The DCA Framework Performance measurement report contains measurements that provide performance information that is specific to the DCA Framework.

Table 33: DCA Framework Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
DcaOpcodeHandlerMax	The maximum number of opcodes executed by Perl script event handlers.	5 min
DcaOpcodeMainMax	The maximum number of opcodes executed by the main part of the Perl script.	5 min

Measurement Tag	Description	Collection Interval
DcaRuntimeErrCount	The total number of Diameter messages that encounter script run-time errors, counted during the collection interval.	5 min
DcaTermOpcodeCnt	The number of Diameter transactions terminated because one of the event handlers have exceeded the maximum configured number of opcodes.	5 min
RxDcaAnswerMsgQueueAvg	The average Answer Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxDcaAnswerMsgQueuePeak	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxDcaAnswerProcessed	The number of Answers processed by a DSR Application, counted during the collection interval.	5 min
RxDcaMsgProcessed	The number of Requests and Answers processed by a DSR Application, counted during the collection interval.	5 min
RxDcaMsgRateAvg	The average DSR Application's Ingress Message Rate, measured during the collection interval.	5 min
RxDcaMsgRatePeak	The peak DSR Application's Ingress Message Rate, measured during the collection interval.	5 min
RxDcaRequestMsgQueueAvg	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxDcaRequestMsgQueuePeak	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxDcaRequestProcessed	The number of Requests processed by a DSR Application, counted during the collection interval.	5 min
RxDcaSbrEventMsgQueueAvg	The average SBR Event Message Queue utilization (0-100%), measured during the collection interval.	5 min
RxDcaSbrEventMsgQueuePeak	The peak SBR Event Message Queue utilization (0-100%), measured during the collection interval.	5 min
RxDcaTransactionsCompleted	The number of transactions completed by the DCA Application.	5 min

Measurement Tag	Description	Collection Interval
RxDcaTransactionsTerminatedAns	The number of transactions terminated by the DCA Application by returning an error answer.	5 min
RxDcaTransactionsTerminatedDrop	The number of transactions terminated by the DCA Application by discarding the request.	5 min
TxDcaSbrEventRateAvg	The average DSR Application's SBR Query Rate, measured during the collection interval.	5 min
TxDcaSbrEventRatePeak	The peak DSR Application's SBR Query Rate, measured during the collection interval.	5 min
TxDcaSbrEventSent	The number of SBR Queries successfully sent to the U-SBR, counted during the collection interval.	5 min

DcaOpcodeHandlerMax

Measurement Group DCA Framework Performance

Measurement Type Max

Measurement Dimension Arrayed (by DcaDalId)

Description The maximum number of opcodes executed by Perl script event handlers.

Collection Interval 5 min

Peg Condition This measurement is the destination measurement of the DcaOpcodeHandler sysmetric.

Measurement Scope Server Group

Recovery

No action required.

DcaOpcodeMainMax

Measurement Group DCA Framework Performance

Measurement Type Max

Measurement Dimension Arrayed (by DcaDalId)

Description The maximum number of opcodes executed by the main part of the Perl script.

Collection Interval 5 min

Peg Condition This measurement is the destination measurement of the DcaOpcodeMain sysmetric.

Measurement Scope Server Group

Recovery

No action required.

DcaRuntimeErrCount

Measurement Group	DCA Framework Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The total number of Diameter messages that encounter script run-time errors, counted during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged each time the Perl interpreter returns a run-time error.
Measurement Scope	Server Group

Recovery

No action required.

DcaTermOpcodeCnt

Measurement Group	DCA Framework Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of Diameter transactions terminated because one of the event handlers have exceeded the maximum configured number of opcodes.
Collection Interval	5 min
Peg Condition	An event handler is terminated because it has exceeded the maximum configured number of opcodes.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaAnswerMsgQueueAvg

Measurement Group	DCA Framework Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by DcaDalId)

Description	The average Answer Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Answer Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaAnswerMsgQueuePeak

Measurement Group	DCA Framework Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by DcaDalId)
Description	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Answer Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaAnswerProcessed

Measurement Group	DCA Framework Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of Answers processed by a DSR Application, counted during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged for each Answer message successfully de-queued from the DSR Application Answer Message queue.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaMsgProcessed

Measurement Group	DCA Framework Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of Requests and Answers processed by a DSR Application, counted during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged for each Request/Answer message successfully de-queued from the DSR Application Request/Answer Message queue.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaMsgRateAvg

Measurement Group	DCA Framework Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by DcaDalId)
Description	The average DSR Application's Ingress Message Rate, measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all DSR Application Ingress Message Rate samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaMsgRatePeak

Measurement Group	DCA Framework Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by DcaDalId)
Description	The peak DSR Application's Ingress Message Rate, measured during the collection interval.
Collection Interval	5 min

Peg Condition	The maximum DSR Application Ingress Message Rate sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaRequestMsgQueueAvg

Measurement Group	DCA Framework Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by DcaDalId)
Description	The average Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaRequestMsgQueuePeak

Measurement Group	DCA Framework Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by DcaDalId)
Description	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Request Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaRequestProcessed

Measurement Group	DCA Framework Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of Requests processed by a DSR Application, counted during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged for each Request message successfully de-queued from the DSR Application Request Message queue.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaSbrEventMsgQueueAvg

Measurement Group	DCA Framework Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by DcaDalId)
Description	The average SBR Event Message Queue utilization (0-100%), measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all SBR Event Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaSbrEventMsgQueuePeak

Measurement Group	DCA Framework Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by DcaDalId)
Description	The peak SBR Event Message Queue utilization (0-100%), measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum SBR Event Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaTransactionsCompleted

Measurement Group	DCA Framework Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of transactions completed by the DCA Application.
Collection Interval	5 min
Peg Condition	This measurement is pegged for each transaction terminated by forwarding the original Diameter Answer (either explicitly using a "forward" API call or implicitly by having the DCA framework default to forwarding the answer if no explicit action is encountered in the script).
Measurement Scope	Server Group

Recovery

No action required.

RxDcaTransactionsTerminatedAns

Measurement Group	DCA Framework Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of transactions terminated by the DCA Application by returning an error answer.
Collection Interval	5 min
Peg Condition	This measurement is pegged for each transaction when the DCA Application, acting as a relay, initiates an error answer response using the "answer" built-in API call.
Measurement Scope	Server Group

Recovery

No action required.

RxDcaTransactionsTerminatedDrop

Measurement Group	DCA Framework Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of transactions terminated by the DCA Application by discarding the request.
Collection Interval	5 min

Peg Condition	This measurement is pegged for each transaction when the DCA Application, acting as a relay, discards the ingress message using the "drop" built-in API call.
Measurement Scope	Server Group

Recovery

No action required.

TxDcaSbrEventRateAvg

Measurement Group	DCA Framework Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by DcaDalId)
Description	The average DSR Application's SBR Query Rate, measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average DSR Application SBR Query Rate sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

TxDcaSbrEventRatePeak

Measurement Group	DCA Framework Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by DcaDalId)
Description	The peak DSR Application's SBR Query Rate, measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum DSR Application SBR Query Rate sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

TxDcaSbrEventSent

Measurement Group	DCA Framework Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by DcaDalId)
Description	The number of SBR Queries successfully sent to the U-SBR, counted during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged for each SBR Query successfully sent to the U-SBR.
Measurement Scope	Server Group

Recovery

No action required.

Diameter Signaling Router (DSR) Application Exception measurements

The "DSR Application Exception" measurement group is a set of measurements that provide information about exceptions and unexpected messages and events that are specific to the DSR protocol.

Table 34: DSR Application Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxApplRequestNoRoutes	Number of Request messages received from a DSR Application that could not be routed.	5 min
RxApplUnavailable	Number of Request messages received for a DSR Application that could not be routed to the DSR Application because it was Unavailable.	5 min
RxApplUnavailableForRequest	Number of Request messages received for a DSR Application which could not be routed to DSR Application because it was not available.	5 min
RxApplUnavailableForAnswer	Number of Answer messages received for a DSR Application which could not be routed to DSR Application because it was not available.	5 min
TxCpaFullDRLAnswerReject	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.	5 min
TxCpaFullDRLRequestReject	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.	5 min

Measurement Tag	Description	Collection Interval
TxFabrFullDRLRequestReject	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
TxFabrFullDRLAnswerDiscard	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.	5 min
TxRbarFullDRLRequestReject	Egress Request Messages Rejected - DRL Request Queue Full.	5 min
TxRbarFullDRLAnswerDiscard	Egress Answer Messages Discarded - DRL Answer Queue Full.	5 min
TxGlaFullDRLAnswerDiscard	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.	5 min

RxApplRequestNoRoutes

Measurement Group DSR Application Exception

Measurement Type Simple

Measurement Dimension Arrayed (by DSR Application ID)

Description Number of Request messages received from a DSR Application that could not be routed.

Collection Interval 5 min

Peg Condition When DRL successfully receives a Request message from the DSR Application that is rejected with an Answer response because either a Peer Routing Rule was not found or implicit routing could not be invoked.

The DSR Application is forwarding Request messages that cannot be routed to a peer. The following problems could exist:

- A Peer Routing Rule could be missing of incorrectly configured.
- The DSR Application could be incorrectly configured.
- The Request message from a downstream peer was mis-routed to the DSR.

Measurement Scope Server Group

Recovery

1. Verify the Peer Routing Rules on the **Diameter** > **Configuration** > **Peer Routing Rules** GUI screen and make any needed corrections.
2. Verify the DSR Application Id configuration on the **Diameter** > **Configuration** > **Application Ids** GUI screen and make any needed corrections.

RxApplUnavailable

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Application ID)
Description	Number of Request messages received for a DSR Application that could not be routed to the DSR Application because the DSR Application was Unavailable.
Collection Interval	5 min
Peg Condition	When DRL receives a Request message from a peer that matches an Application Routing Rule, but cannot be routed to the DSR Application because its Operational Status is "Unavailable". The DSR Application Operational Status is "Unavailable" when one of the following conditions occurs: • The operator has removed the DSR Application from service (Admin State is "Disabled".) • The DSR Application was congested when an attempt to route a Request message to the SR Application occurred. When a DSR Application is "Unavailable", the message will be handled as defined by the "unavailability Action" attribute for the DSR Application (see the GUI screen for the DSR Application).
Measurement Scope	Server Group

Recovery

1. Verify the DSR Application Admin State on the **Diameter** > **Maintenance** > **Applications** GUI screen.
2. Verify the DSR Application "Unavailability Action" attribute configuration on the **Diameter** > **Configuration** > **Application IDs** GUI screen.

RxApplUnavailableForAnswer

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by DSR Application ID)
Description	Number of Answer messages received for a DSR Application which could not be routed to DSR Application because it was not available.
Collection Interval	5 min
Peg Condition	When DRL receives an Answer message from a peer associated with a PTR indicating that the Answer response must be routed back to the DSR Application but cannot be routed to the DSR Application because its Operational Status is “Unavailable.”

A DSR Application's Operational Status is "Unavailable" when one of the following conditions occur:

- The operator has removed the DSR Application from service (Admin State is "Disabled")
- The DSR Application was congested when an attempt to route a Request message to the DSR Application occurred.

When a DSR Application is "Unavailable", the message will be handled as defined by the "unavailability Action" attribute for the DSR Application (see the GUI screen for the DSR Application).

Measurement Scope Server Group

Recovery

1. Verify the DSR Application Admin State on the **Diameter** > **Maintenance** > **Applications** GUI screen.
2. Verify the DSR Application "Unavailability Action" attribute configuration on the **Diameter** > **Configuration** > **Application Ids** GUI screen.

RxApplUnavailableForRequest

Measurement Group DSR Application Exception

Measurement Type Simple

Measurement Dimension Arrayed (by DSR Application ID)

Description Number of Request messages received for a DSR Application which could not be routed to DSR Application because it was not available.

Collection Interval 5 min

Peg Condition When DRL receives a Request message from a peer which matches a ART rule but cannot be routed to the DSR Application because its Operational Status was not "Available".

A DSR Application's Operational Status is "Unavailable" when one of the following conditions occur:

- The operator has removed the DSR Application from service (Admin State is "Disabled").
- The DSR Application was congested when an attempt to route a Request message to the DSR Application occurred.

When a DSR Application is "Unavailable", the message will be handled as defined by the "unavailability Action" attribute for the DSR Application (see the GUI screen for the DSR Application).

Measurement Scope Server Group

Recovery

1. Verify the DSR Application Admin State on the **Diameter** > **Maintenance** > **Applications** GUI screen.

2. Verify the DSR Application "Unavailability Action" attribute configuration on the **Diameter** > **Configuration** > **Application IDs** GUI screen.

TxCpaFullDRLRequestReject

Measurement Group	DSR Application Exception
Measurement Type	Average
Measurement Dimension	Single
Description	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.
Collection Interval	5 min
Peg Condition	For each Request message discarded because the "DRL's Request Queue" was full. Used for congestion control by DSR.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxCpaFullDRLAnswerDiscard

Measurement Group	DSR Application Exception
Measurement Type	Average
Measurement Dimension	Single
Description	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.
Collection Interval	5 min
Peg Condition	For each Answer message discarded because the "All-Connections Event Queue" was full. Used for congestion control by DSR.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxFabrFullDRLRequestReject

Measurement Group	DSR Application Exception
Measurement Type	Average
Measurement Dimension	Single
Description	The average Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxFabrFullDRLAnswerDiscard

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.

Collection Interval	5 min
Peg Condition	For each Answer message discarded because the "All-Connections Event Queue" was full.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxRbarFullDRLRequestReject

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.
Collection Interval	5 min
Peg Condition	When a Request message is discarded because the DRL's Request Queue is full.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxRbarFullDRLAnswerDiscard

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.
Collection Interval	5 min
Peg Condition	When an Answer message is discarded because the All-Connections Event Queue is full.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxGlaFullDRLAnswerDiscard

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.
Collection Interval	5 min
Peg Condition	Each time an Answer message is discarded because the "All-Connections Event Queue" was full.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

Diameter Signaling Router (DSR) Application Performance measurements

The "DSR Application Performance" measurement group is a set of measurements that provide performance information that is specific to the DSR protocol. These measurements will allow the user to determine how many messages are successfully forwarded and received to and from each DSR Application.

Table 35: DSR Application Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxApplAnswerFwdSuccess	Number of Answer messages successfully forwarded to a DSR Application	5 min
RxApplAnswerReceived	Number of Answer messages received from a DSR Application	5 min
RxApplRequestFwdSuccess	Number of Request messages successfully forwarded to a DSR Application	5 min
RxApplRequestReceived	Number of Request messages received from a DSR Application	5 min
RxCpaAnswerMsgQueueAvg	The average Answer Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxCpaAnswerMsgQueuePeak	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxCpaAnswerProcessed	The total number of Answers processed by DSR Application.	5 min
RxCpaEventMsgQueueAvg	The average CPA Application Event Message Queue utilization measured during the collection interval.	5 min
RxCpaEventMsgQueuePeak	The peak CPA Application Event Message Queue utilization measured during the collection interval.	5 min

Measurement Tag	Description	Collection Interval
RxCpaMsgRateAvg	The average DSR Application's Message Processing rate measured during the collection interval.	5 min
RxCpaMsgRatePeak	The peak DSR Application's Message Processing rate measured during the collection interval.	5 min
RxCpaRequestMsgQueueAvg	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxCpaRequestMsgQueuePeak	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxCpaRequestProcessed	The total number of Requests processed by DSR Application.	5 min
RxDmiwfRequestMsgQueuePeak	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval	5 min
RxDmiwfRequestMsgQueueAvg	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxDmiwfAnswerMsgQueuePeak	The peak DSR Application's Answer Message Queue utilization (0-100%) measured during the collection interval	5 min
RxDmiwfAnswerMsgQueueAvg	The average Answer Message Queue utilization (0-100%) measured during the collection interval.	5 min
TxDmiwfFullDRLRequestReject	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full	5 min
TxDmiwfFullDRLAnswerDiscard	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full	5 min
RxDmiwfMsgRatePeak	The peak DSR Application's Message Processing rate measured during the collection interval	5 min
RxDmiwfMsgRateAvg	The average DSR Application's Message Processing rate measured during the collection interval	5 min
RxDmiwfRequestProcessed	The number of Requests processed by a DSR Application during the collection interval	5 min

Measurement Tag	Description	Collection Interval
RxDmiwfAnswerProcessed	The number of Answers processed by a DSR Application during the collection interval	5 min
RxFabrMsgRateAvg	The average DSR Application's Ingress Message Rate measured during the collection interval.	5 min
RxFabrMsgRatePeak	The peak DSR Application's Ingress Message Rate measured during the collection interval.	5 min
RxFabrRequestMsgQueueAvg	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxFabrRequestMsgQueuePeak	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxGlaRequestMsgQueuePeak	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxGlaRequestMsgQueueAvg	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxGlaMsgRatePeak	The peak DSR Application's Ingress Message Rate measured during the collection interval.	5 min
RxGlaMsgRateAvg	The average DSR Application's Ingress Message Rate measured during the collection interval.	5 min
RxGlaRequestProcessed	The number of Requests processed by a DSR Application during the collection interval.	5 min
RxFabrRequestProcessed	The number of Requests processed by a DSR Application during the collection interval.	5 min
RxPcaMsgRatePeak	Peak Policy and Charging DSR Application Ingress Message Processing Rate.	5 min
RxPcaMsgRateAvg	Average Policy and Charging DSR Application Ingress Message Processing Rate.	5 min
RxPcaAnswerProcessed	Number of Diameter Answer messages processed by Policy and Charging DSR Application.	5 min
RxPcaRequestProcessed	Number of Diameter Request messages processed by Policy and Charging DSR Application.	5 min
RxRbarMsgRateAvg	DSR Application Message Processing Rate	5 min

Measurement Tag	Description	Collection Interval
RxRbarMsgRatePeak	DSR Application Message Processing Rate Peak	5 min
RxRbarRequestMsgQueueAvg	DSR Application Request Message Queue Average Utilization	5 min
RxRbarRequestMsgQueuePeak	DSR Application Request Message Queue Peak Utilization	5 min
RxRbarRequestProcessed	Total number of Requests processed by DSR Application	5 min
TxApplTransSuccess	Number of Transactions initiated by DSR Application that successfully completed	5 min

RxApplAnswerFwdSuccess

Measurement Group DSR Application Performance

Measurement Type Simple

Measurement Dimension Arrayed (by DSR Application ID)

Description Number of Answer messages successfully forwarded to a DSR Application

Collection Interval 5 min

Peg Condition When DRL successfully enqueues an Answer message on the DSR Application's internal Message Queue.

Measurement Scope Server Group

Recovery

No action required.

RxApplAnswerReceived

Measurement Group DSR Application Performance

Measurement Type Simple

Measurement Dimension Arrayed (by DSR Application ID)

Description Number of Request messages received from a DSR Application.

Collection Interval 5 min

Peg Condition When DRL successfully receives a Request message from a DSR Application.

Measurement Scope Server Group

Recovery

No action required.

RxApplRequestFwdSuccess

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DSR Application ID)
Description	Number of Request messages successfully forwarded to a DSR Application.
Collection Interval	5 min
Peg Condition	When DRL successfully enqueues a Request message on the DSR Application's internal Message Queue.
Measurement Scope	Server Group

Recovery

No action required.

RxApplRequestReceived

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DSR Application ID)
Description	Number of Request messages received from a DSR Application.
Collection Interval	5 min
Peg Condition	When DRL successfully receives a Request message from a DSR Application.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaAnswerMsgQueueAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Answer Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min

Peg Condition	The average of all Answer Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaAnswerMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Answer Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaAnswerProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of Answers processed by DSR Application.
Collection Interval	5 min
Peg Condition	This measurement will be incremented when a Diameter Answer is received.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaEventMsgQueueAvg

Measurement Group	DSR Application Performance
Measurement Type	Average

Measurement Dimension	Single
Description	The average CPA Application Event Message Queue utilization measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average Event Message Queue utilizations sample taken during the collection interval.
Measurement Scope	Network, NE, Server Group

Recovery

No action required.

RxCpaEventMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak CPA Application Event Message Queue utilization measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Event Message Queue utilization sample taken during the collection interval.
Measurement Scope	Network, NE, Server Group

Recovery

No action required.

RxCpaMsgRateAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average DSR Application's Message Processing rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all message processing rate samples taken during the collection interval. Used for congestion control by DSR.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaMsgRatePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DSR Application's Message Processing rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum message processing rate sample taken during the collection interval. Used for congestion control by DSR.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaRequestMsgQueueAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaRequestMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min

Peg Condition	The maximum Request Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

No action required.

RxCpaRequestProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of Requests processed by DSR Application.
Collection Interval	5 min
Peg Condition	This measurement will be incremented when a Diameter Request is received.
Measurement Scope	Server Group

Recovery

No action required.

RxDmiwfRequestMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Request Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
2. If no additional congestion alarms are asserted, the DSR Application Task may be experiencing a problem preventing it from processing messages from its Request Message Queue. Examine the Alarm log in **Alarms & Events**.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxDmiwfRequestMsgQueueAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Request Message Queue utilization (0-100%) measured during the collection interval
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
2. If no additional congestion alarms are asserted, the DSR Application Task may be experiencing a problem preventing it from processing messages from its Request Message Queue. Examine the Alarm log in **Alarms & Events**.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxDmiwfAnswerMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum Answer Message Queue utilization (0-100%) taken during the collection interva
Collection Interval	5 min
Peg Condition	The maximum Answer Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
2. If no additional congestion alarms are asserted, the DSR Application Task may be experiencing a problem preventing it from processing messages from its Answer Message Queue. Examine the Alarm log in **Alarms & Events**.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxDmiwfAnswerMsgQueueAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average of all Answer Message Queue utilization samples taken during the collection interval
Collection Interval	5 min
Peg Condition	The average of all Answer Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**
2. If no additional congestion alarms are asserted, the DSR Application Task may be experiencing a problem preventing it from processing messages from its Answer Message Queue. Examine the Alarm log in **Alarms & Events**.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxDmiwfFullDRLRequestReject

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.
Collection Interval	5 min
Peg Condition	For each Request message discarded because the DRL's Request Queue was full.
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occuring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.

- If the problem persists, it is recommended to contact the *My Oracle Support (MOS)* for assistance.

TxDmiwfFullDRLAnswerDiscard

Measurement Group	DSR Application Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full
Collection Interval	5 min
Peg Condition	For each Answer message discarded because the All-Connections Event Queue was full
Measurement Scope	Server Group

Recovery

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occuring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, it is recommended to contact the *My Oracle Support (MOS)* for assistance.

RxDmiwfMsgRatePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DSR Application's Ingress Message Rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum DSR Application Ingress Message Rate sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**

2. There may be an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxDmiwfMsgRateAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average DSR Application's Ingress Message Rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all DSR Application Ingress Message Rate samples taken during the collection interval
Measurement Scope	Server Group

Recovery

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**
2. There may be an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxDmiwfRequestProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Requests processed by a DSR Application during the collection interval.
Collection Interval	5 min
Peg Condition	For each Request message successfully de-queued from the DSR Application's Request Message queue
Measurement Scope	Server Group

Recovery

No action required.

RxDmiwfAnswerProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Answers processed by a DSR Application during the collection interval
Collection Interval	5 min
Peg Condition	For each Answer message successfully de-queued from the DSR Application's Answer Message" queue
Measurement Scope	Server Group

Recovery

No action required.

RxFabrMsgRateAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average DSR Application’s Ingress Message Rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all DSR Application Ingress Message Rate samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Verify the configuration using **Diameter** > **Configuration** > **Application Routing Rules**.

   The Application Routing Table may be mis-configured and sending too much traffic to the DSR Application.

2. Use **Main Menu** > **Status & Manage** > **KPIs**to monitor the ingress traffic rate of each MP.

   The MPs may be unable to handle the network load. MPs are in a congestion state when the ingress message rate to the MP is exceeding its capacity to process the messages.

3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxFabrMsgRatePeak

Measurement Group	DSR Application Performance
Measurement Type	Max

Measurement Dimension	Single
Description	The peak DSR Application's Ingress Message Rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum DSR Application Ingress Message Rate sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Verify the configuration using **Diameter** > **Configuration** > **Application Routing Rules**.

   The Application Routing Table may be mis-configured and sending too much traffic to the DSR Application.

2. Use **Main Menu** > **Status & Manage** > **KPIs**to monitor the ingress traffic rate of each MP.

   The MPs may be unable to handle the network load. MPs are in a congestion state when the ingress message rate to the MP is exceeding its capacity to process the messages.

3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxFabrRequestMsgQueueAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application status by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the Admin State is set as expected.

   The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.

2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxFabrRequestMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Request Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application status by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the Admin State is set as expected.

   The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxFabrRequestProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Requests processed by a DSR Application during the collection interval.
Collection Interval	5 min
Peg Condition	For each Request message successfully de-queued from the DSR Application's Request Message queue.
Measurement Scope	Server Group

Recovery

No action required.

RxGlaMsgRateAvg

Measurement Group	DSR Application Performance

Measurement Type	Average
Measurement Dimension	Single
Description	The average DSR Application's Ingress Message Rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all DSR Application Ingress Message Rate samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter** > **Configuration** > **Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage** > **KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance.

RxGlaMsgRatePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DSR Application's Ingress Message Rate measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum DSR Application Ingress Message Rate sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter** > **Configuration** > **Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage** > **KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance.

RxGlaRequestMsgQueueAvg

Measurement Group	DSR Application Performance

Measurement Type	Average
Measurement Dimension	Single
Description	The average Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter** > **Configuration** > **Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage** > **KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. Contact *My Oracle Support (MOS)* for further assistance.

RxGlaRequestMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Request Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter** > **Configuration** > **Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage** > **KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance.

RxGlaRequestProcessed

Measurement Group	DSR Application Performance

Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Requests processed by a DSR Application during the collection interval.
Collection Interval	5 min
Peg Condition	Each time a Request message successfully de-queued from the DSR Application's Request Message queue.
Measurement Scope	Server Group

Recovery

No action required.

RxPcaRequestProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Requests processed by Policy and Charging DSR Application during the collection interval
Collection Interval	5 min
Peg Condition	Each time a Diameter Request message is successfully de-queued from the Policy and Charging DSR Application's Request Message queue.
Measurement Scope	Server Group

Recovery

No action required.

RxPcaAnswerProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Diameter Answer messages processed by Policy and Charging DSR Application.
Collection Interval	5 min
Peg Condition	Each time a Diameter Answer message is successfully de-queued from the Policy and Charging DSR Application's Request Message queue.
Measurement Scope	Server Group

Recovery

No action required.

RxPcaMsgRateAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average Policy and Charging DSR Application's Ingress Message Rate measured during the collection interval
Collection Interval	5 min
Peg Condition	When the average of all DSR Application Ingress Message Rate samples is taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application message rate by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter** > **Status & Manage** > **KPIs**.

   If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, contact *My Oracle Support (MOS)*.

RxPcaMsgRatePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Peak Policy and Charging DSR Application's Ingress Message Rate measured during the collection interval
Collection Interval	5 min
Peg Condition	When the maximum of all DSR Application Ingress Message Rate samples is taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application message rate by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.

3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter** > **Status & Manage** > **KPIs**.

   If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.

4. If the problem persists, contact *My Oracle Support (MOS)*.

RxRbarMsgRateAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average DSR Application's Ingress Message Rate measured during the collection interval
Collection Interval	5 min
Peg Condition	When the average of all DSR Application Ingress Message Rate samples is taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application message rate by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter** > **Status & Manage** > **KPIs**.

   If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.

4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxRbarMsgRatePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Peak DSR Application's Ingress Message Rate measured during the collection interval
Collection Interval	5 min
Peg Condition	When the maximum DSR Application Ingress Message Rate sample is taken during the collection interval
Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application message rate by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the message rate is set as expected.

2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter** > **Status & Manage** > **KPIs**.

   If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxRbarRequestMsgQueueAvg

Measurement Group	DSR Application Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average Request Message Queue utilization (0-100%) measured during the collection interval
Collection Interval	5 min
Peg Condition	When the average of all Request Message Queue utilization samples is taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application status by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the Operational Reason, which indicates congestion level, is set as expected.

   The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxRbarRequestMsgQueuePeak

Measurement Group	DSR Application Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval
Collection Interval	5 min
Peg Condition	When the maximum Request Message Queue utilization sample is taken during the collection interval.

Measurement Scope	Server Group

Recovery

1. Display and monitor the DSR Application status by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the Operational Reason, which indicates congestion level, is set as expected.

   The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxRbarRequestProcessed

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Requests processed by a DSR Application during the collection interval
Collection Interval	5 min
Peg Condition	When a Request message is successfully de-queued from the DSR Application's Request Message queue.
Measurement Scope	Server Group

Recovery

No action required.

TxApplTransSuccess

Measurement Group	DSR Application Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by DSR Application ID)
Description	Number of Request messages received from a DSR Application.
Collection Interval	5 min
Peg Condition	When DRL successfully receives a Request message from a DSR Application.
Measurement Scope	Server Group

Recovery

No action required.

Diameter Egress Transaction measurements

The Diameter Egress Transaction measurement report contains measurements providing information about Diameter peer-to-peer transactions forwarded to upstream peers.

Table 36: Diameter Egress Transaction Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxAnswerExpectedAll	Number of valid Answer messages received from an upstream peer that were associated with a pending transaction.	5 min
RxAnswerMsgQueueFullDiscard	Number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.	5 min
RxRedirectHostNotRouted	Number of Redirect Host Notifications received for which a Redirected Request was not submitted for rerouting.	5 min
RxRedirectHostRouted	Number of Redirect Host Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.	5 min
RxRedirectRealmNotRouted	Number of Redirect Realm Notifications received for which a Redirected Request was not submitted for rerouting.	5 min
RxRedirectRealmRouted	Number of Redirect Realm Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.	5 min
TxAnswerTimeout	Number of times that an Answer response was not received from a peer before the maximum allowed time defined by the "Pending Answer Timer" value.	5 min
TxAnswerTimeoutMp	Number of times that an Answer response was not received from a peer before the maximum allowed time defined by the "Pending Answer Timer" value..	5 min
TxConnAnswerMsgs	Number of routable Answer messages successfully sent on the connection.	5 min
TxConnectionFailed	Egress peer-to-peer transactions aborted by a Local Node - connection failure.	5 min

Measurement Tag	Description	Collection Interval
TxConnRequestMsgs	Number of routable Request messages successfully sent on the connection.	5 min
TxRequestSuccessAllConn	Number of Request messages successfully routed to a peer.	5 min

RxAnswerExpectedAll

Measurement Group	Diameter Egress Transaction, Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.
Collection Interval	5 min
Peg Condition	When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction is found. The connection measurement is associated with the connection from which the Answer message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxAnswerMsgQueueFullDiscard

Measurement Group	Diameter Egress Transaction, Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.
Collection Interval	5 min
Peg Condition	For each Answer message discarded because the Answer Message Queue was full. The connection measurement is associated with the connection from which the message was received.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxRedirectHostNotRouted

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Redirect Host Notifications received for which a Redirected Request was not submitted for rerouting.
Collection Interval	5 min
Peg Condition	When DRL, for any reason, does not submit the Redirected Request message for routing. The connection measurement is associated with the connection from which the Redirect Notification was received.
Measurement Scope	Site

Recovery

No action required.

RxRedirectHostRouted

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Redirect Host Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.
Collection Interval	5 min
Peg Condition	When DRL successfully queues a Redirected Request message for routing. The connection measurement is associated with the Connection from which the Redirect Notification was received.
Measurement Scope	Site

Recovery

No action required.

RxRedirectRealmNotRouted

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Redirect Realm Notifications received for which a Redirected Request was not submitted for rerouting.
Collection Interval	5 min
Peg Condition	When DRL, for any reason, does not submit the Redirected Request message for routing. The connection measurement is associated with the connection from which the Redirect Notification was received.
Measurement Scope	Site

Recovery

No action required.

RxRedirectRealmRouted

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Redirect Realm Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.
Collection Interval	5 min
Peg Condition	When DRL successfully queues a Redirected Request message for routing. The connection measurement is associated with the connection from which the Redirect Notification was received.
Measurement Scope	Site

Recovery

No action required.

TxAnswerTimeout

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of times that an Answer response was not received from a peer before the maximum allowed time defined by the “Pending Answer Timer” value. Answer timeouts can be caused by a variety of reasons: • The peer associated with this connection may be experiencing congestion, causing delays in sending the Answer response. • IP Network congestion. • If the peer associated with this connection is a Diameter Relay Agent, then an upstream node from the peer may be experiencing congestion, causing delays in sending the Answer response.
Collection Interval	5 min
Peg Condition	When timer PENDING-ANSWER-TIMER expires. The connection measurement is associated with the connection from which the corresponding Request message was sent.
Measurement Scope	Server Group

Recovery

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before a Answer response is received. The user-configurable value is set using the page **Diameter** > **Configuration** > **System Options**.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxAnswerTimeoutAllMp

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times that an Answer response was not received from a peer before the maximum allowed time defined by the "Pending Answer Timer" value.
Collection Interval	5 min
Peg Condition	When timer PENDING-ANSWER-TIMER expires. The connection measurement is associated with the connection from which the corresponding Request message was sent. **Note:** This measurement is the DA-MP equivalent to the "per connection" measurement *TxAnswerTimeout*.
Measurement Scope	Site

Recovery

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before a Answer response is received. The user-configurable value is set using the page **Diameter** > **Configuration** > **System Options**.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxAnswerTimeoutMp

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times that an Answer response was not received from a peer before the maximum allowed time defined by the "Pending Answer Timer" value.
Collection Interval	5 min
Peg Condition	When timer PENDING-ANSWER-TIMER expires. The connection measurement is associated with the connection from which the corresponding Request message was sent. **Note:** This is the DA-MP equivalent to the "per connection" measurement, *TxAnswerTimeout*.
Measurement Scope	Site

Recovery

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before an Answer response is received. The user-configurable value is set using the page **Diameter** > **Configuration** > **System Options**.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxConnectionFailed

Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of times that a pending peer-to-peer transaction was abandoned due to a transport connection failure.
Collection Interval	5 min
Peg Condition	When a pending transaction is rerouted due to a transport connection failure. This connection measurement is associated with the connection to which the corresponding Request message was sent.
Measurement Scope	Server Group

Recovery

1. Connection status can be monitored using the **Diameter** > **Maintenance** > **Connections** page.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxConnAnswerMsgs

Measurement Group	Diameter Egress Transaction, Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of routable Answer messages successfully sent on the connection.
Collection Interval	5 min
Peg Condition	Pegged when a Diameter Answer message is sent to the peer.
Measurement Scope	Server Group

Recovery

No action required.

TxConnRequestMsgs

Measurement Group	Diameter Egress Transaction, Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of routable Request messages successfully sent on the connection.
Collection Interval	5 min
Peg Condition	Pegged when a Diameter request message is sent to the peer.
Measurement Scope	Server Group

Recovery

No action required.

TxRequestSuccessAllConn

Measurement ID	10043
Measurement Group	Diameter Egress Transaction
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages successfully routed to a peer.
Collection Interval	5 min

Peg Condition	When the DSR successfully queues a Request message to the DCL. The connection measurement is associated with the connection to which the Request message was sent.
Measurement Scope	Server Group

Recovery

No action required.

Diameter Exception measurements

The Diameter Exception measurement report contains measurements that provide information about exceptions and unexpected messages and events that are specific to the Diameter protocol.

Table 37: Diameter Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvApplIdListInconsistency	Number of times that the supported Application IDs received from the Peer were Inconsistent with another Transport Connection	5 min
EvTransLifetimeExceededMp	Number of transaction failures because “Transaction Lifetime” exceeded.	5 min
EvTransRejectedByExternalNode	The number of transactions rejected by an external node with a non-2xxx Result-Code value.	5 min
RxAnswerMsgQueueFullDiscard	Number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.	5 min
RxAnswerUnexpected	Number of valid Answer messages received from an upstream peer that could not be associated with a pending transaction	5 min
RxAnswerUnexpectedAllMp	Number of Answer messages received from an upstream peer that could not be associated with a pending transaction	5 min
RxDOCRejectMp	Number of ingress messages that were rejected with error answer due to local DA-MP danger of CPU congestion .	5 min
RxMsgsOCGreenPri0DiscardMp	The number of Green ingress Priority 0 messages discarded by the DA-MP Overload Control component.	5 min

Measurement Tag	Description	Collection Interval
RxMsgsOCYellowPri0 DiscardMp	The number of Yellow ingress Priority 0 messages discarded by the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri1DiscardMp	The number of Green ingress Priority 1 messages discarded by the DA-MP Overload Control component.	5 min
RxMsgsOCYellowPri1 DiscardMp	The number of Yellow ingress Priority 1 messages discarded by the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri2DiscardMp	The number of Green ingress Priority 2 messages discarded by the DA-MP Overload Control component.	5 min
RxMsgsOCYellowPri2 DiscardMp	The number of Yellow ingress Priority 2 messages discarded by the DA-MP Overload Control component.	5 min
TmConnDegraded	Total time (in seconds) during the reporting period that the connection state was in the Degraded state.	5 min
TmConnEnabledNotAvail	Total time (in seconds) during the reporting period that the connection state was Administratively Enabled and the connection state was not Available.	5 min
TxDtlsOversizedDiscard	Number of oversized egress messages discarded on the DTLS connection.	5 min
TxReqMsgPerConnPtrMax	Number of times message routing bypassed the connection because the maximum allowed pending transactions was exceeded	5 min
TxRequestEgressLoop	Outgoing message loops detected	5 min

EvApplIdListInconsistency

Measurement Group Diameter Exception

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description Number of times that the supported Application IDs received from the peer were inconsistent with another transport connection.

Collection Interval 5 min

Peg Condition If the Application ID list received from the DSR for a peer's transport connection is not identical to the Application ID list

	for at least one of the transport connections for a peer that has an Operation Status state of Available.
Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage** > **Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. If no additional congestion alarms are asserted, the DSR may be experiencing a problem preventing it from processing events from its All-Connections Event Queue. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvTransLifetimeExceededMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of transaction failures because “Transaction Lifetime” exceeded.
Collection Interval	5 min
Peg Condition	When the DRL was prevented from rerouting a Request message because the “Transaction Lifetime” was exceeded.
Measurement Scope	Site

Recovery

No action required.

EvTransRejectedByExternalNode

Measurement ID	14068
Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of transactions rejected by an external node with a non-2xxx Result-Code value.
Collection Interval	5 min
Peg Condition	When DSR successfully relays an answer response received from an upstream external node to a downstream external node and the answer contains a failure response (i.e., a Result-Code AVP value not in the range of 2000-2099) **Note:** This measurement is not pegged for answer generated by application.
Measurement Scope	Server Group

Recovery

No action required.

RxAnswerMsgQueueFullDiscard

Measurement Group	Diameter Egress Transaction, Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.
Collection Interval	5 min
Peg Condition	For each Answer message discarded because the Answer Message Queue was full. The connection measurement is associated with the connection from which the message was received.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxAnswerUnexpected

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.
Collection Interval	5 min
Peg Condition	When the DRL receives an Answer message event from DCL/RCL with a valid transport connection ID for which a pending transaction is found. The connection measurement is associated with the connection from which the Answer message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxAnswerUnexpectedAllMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Answer messages received from an upstream peer that could not be associated with a pending transaction.
Collection Interval	5 min
Peg Condition	When DRL receives an answer message event from DCL/RCL with a valid Diameter Connection ID for which a pending transaction cannot be found The connection measurement is associated with the connection from which the Answer message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxDOCRejectMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress messages that were rejected with error answer due to local DA-MP danger of CPU congestion.
Collection Interval	5 min
Peg Condition	Pegged for each message discarded with a DIAMETER (Error) Answer due to DA-MP danger of CPU congestion.

Measurement Scope	Server Group

Recovery

1. The DA-MP is approaching or exceeding its maximum configured MPS limitation. If this value is not set to the MP's engineered traffic handling capacity, then the maximum MPS capacity allowed may need to be changed.
2. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage** > **Server** page.
3. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage** > **KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
4. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage** > **KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
6. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxMsgsOCGreenPri0DiscardMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Green ingress Priority 0 messages discarded by the DA-MP Overload Control component.
Collection Interval	5 min
Peg Condition	Each time a Priority 0 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component
Measurement Scope	Site

Recovery

1. If one or more MPss in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. Monitor the DA-MP server status from **Main Menu** > **Status & Manage** > **Server Status**.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu** > **Alarms & Events**.

5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxMsgsOCYellowPri0DiscardMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Yellow ingress Priority 0 messages discarded by the DA-MP Overload Control component.
Collection Interval	5 min
Peg Condition	Each time a Priority 0 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component
Measurement Scope	Site

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. Monitor the DA-MP server status from **Main Menu** > **Status & Manage** > **Server Status**.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxMsgsOCGreenPri1DiscardMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Green ingress Priority 1 messages discarded by the DA-MP Overload Control component.
Collection Interval	5 min
Peg Condition	Each time a Priority 1 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component
Measurement Scope	Site

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. Monitor the DA-MP server status from **Main Menu** > **Status & Manage** > **Server Status**.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu** > **Alarms & Events**.
5. If the problem persists, contact *My Oracle Support (MOS)*.

RxMsgsOCYellowPri1DiscardMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Yellow ingress Priority 1 messages discarded by the DA-MP Overload Control component.
Collection Interval	5 min
Peg Condition	Each time a Priority 1 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component
Measurement Scope	Site

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. Monitor the DA-MP server status from **Main Menu** > **Status & Manage** > **Server Status**.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxMsgsOCGreenPri2DiscardMp

Measurement Group	Diameter Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Green ingress Priority 2 messages discarded by the DA-MP Overload Control component.
Collection Interval	5 min
Peg Condition	Each time a Priority 2 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component
Measurement Scope	Site

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. Monitor the DA-MP server status from **Main Menu** > **Status & Manage** > **Server Status**.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxMsgsOCYellowPri2DiscardMp

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Yellow ingress Priority 2 messages discarded by the DA-MP Overload Control component.
Collection Interval	5 min
Peg Condition	Each time a Priority 2 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component
Measurement Scope	Site

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. Monitor the DA-MP server status from **Main Menu** > **Status & Manage** > **Server Status**.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**.

Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.

3. There may be an insufficient number of MPs configured to handle the network traffic load. Monitor the ingress traffic rate of each DA-MP from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TmConnDegraded

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Total time (in seconds) during the reporting period that the connection state was in the Degraded state.
Collection Interval	5 min
Peg Condition	Pegging started when a peer enters the Degraded state. Pegging stopped when the peer enters the Available or Unavailable state. A peer may be degraded for short periods of time (< 30 seconds) due to being in a proving period or during a graceful disconnect; degraded conditions lasting longer periods of time are most likely due to local congestion.
Measurement Scope	Server Group

Recovery

1. If this measurement indicates an excessive amount of time spent in the degraded state, examine the Alarm History to determine the cause of the degraded condition.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmConnEnabledNotAvail

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Total time (in seconds) during the reporting period that the connection state was administratively enabled and the connection state was not Available.
Collection Interval	5 min
Peg Condition	Pegging is started when a peer is enabled or when a peer disconnects. Pegging is stopped when the peer connects and

	completes capabilities exchange, or when the connection is disabled.
Measurement Scope	Server Group

Recovery

1. Examine the Alarm History to determine if the connection is being rejected by either end, and for notification of local congestion.
2. Make sure the peer is running.
3. If the connection is configured as a Responder connection, make sure that the peer is attempting to initiate a connection.
4. If the connection is an Initiator connection, make sure that the peer is listening on the configured port.
5. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxDtlsOversizedDiscard

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of oversized egress messages discarded on the DTLS connection.
Collection Interval	5 min
Peg Condition	When the message size to be sent on the DTLS connection is greater than 16K (16384) bytes.
Measurement Scope	Server Group

Recovery

No action required.

TxReqMsgPerConnPtrMax

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of times message routing bypassed the connection because the maximum allowed pending transactions was exceeded.
Collection Interval	5 min
Peg Condition	Each time the DSR bypasses a transport connection during route selection because the maximum number of pending transactions allowed for the connection was exceeded.

	The connection measurement is pegged against the egress connection with the maximum number of pending transactions condition which prevented message routing.
Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage** > **Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. If no additional congestion alarms are asserted, the DSR may be experiencing a problem preventing it from processing messages from its Request Message Queue. The alarm log should be examined from the **Alarms & Events** page.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxRequestEgressLoop

Measurement Group	Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of times that a selected route associated with an egress peer was not selected because a forwarding loop would occur (i.e., the upstream peer has already processed the Request message as determined by the Route-Record AVPs).
Collection Interval	5 min
Peg Condition	Each time the DSR bypasses a peer during route selection because the peer's FQDN matches one of the FQDNs in the message's Route-Record AVPs. The connection measurement is associated with the first connection assigned to the peer. **Note:** This failure is associated with the peer, not any particular connection. The measurement should always be pegged against the same peer connection, i.e., the first one assigned to the peer.
Measurement Scope	Server Group

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Diameter Ingress Transaction Exception measurements

The Diameter Ingress Transaction Exception report group contains measurements providing information about exceptions associated with the routing of Diameter transactions received from downstream peers.

Table 38: Diameter Ingress Transaction Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxArtRuleRejection	Number of Request messages from a downstream peer rejected by a Local Node because a application routing rule Action is set to "Send Answer" or "Abandon".	5 min
RxDecodeFailure	Number of Request messages rejected from a downstream peer because the message could not be decoded.	5 min
RxDOCDiscardMp	The number of ingress Diameter Request messages received on a connection that were discarded due to local DA-MP danger of CPU congestion.	5 min
RxMessageLooping	Number of Request messages from a downstream peer rejected by a Local Node because message looping was detected (FQDN of the Local Node associated with the ingress transport connection matched an FQDN in the messages' Route-Record AVPs).	5 min
RxNoRoutesFound	Number of Request messages from a downstream peer rejected by a Local Node because no routes were available for routing the message.	5 min
RxNoRulesFailure	Number of Request messages from a downstream peer rejected by a Local Node because no Peer Routing Rule was found.	5 min
RxPrtRuleRejection	Number of Request messages from a downstream peer rejected by a Local Node because a peer routing rule ACTION is set to "Send Answer".	5 min
RxRejectedAll	Number of Request messages rejected from a downstream peer by a Local Node (all reasons).	5 min
RxRejectedOther	Number of Request messages from a downstream peer rejected by a Local Node	5 min

Measurement Tag	Description	Collection Interval
	for any reason other than those identified by other measurements.	
RxRequestMsgQueueFullDiscard	Number of ingress Diameter Request messages that were discarded because the Request Message Queue was full.	5 min
RxTransactionTimeout	Number of Request messages from a downstream peer rejected by a Local Node because maximum message reroutes exceeded.	5 min
TxLongTimeoutPtrListEmpty	Number of ingress Diameter Request messages that were discarded because no Long Timeout PTR Buffers were available.	5 min
TxPerConnQueueFullDiscard	Number of egress messages that were discarded because the "Per Connection Egress Message Queue" was full.	5 min
TxPtrListEmpty	Number of ingress Diameter Request messages that were discarded because no PTR Buffers were available.	5 min
TxRerouteQueueFullReject	Number of egress Diameter Request messages that were rejected because the Reroute Queue was full.	5 min
TxSockFullDiscard	Number of egress Diameter messages that were discarded because the socket was not writable.	5 min

RxArtRuleRejection

Measurement ID 14067

Measurement Group Diameter Ingress Transaction Exception

Measurement Type Simple

Measurement Dimension Arrayed (by Diameter Connection ID)

Description The number of Request messages from a downstream peer rejected by a local node because an application routing rule Action is set to 'Send Answer" or "Abandon with No Answer".

Collection Interval 5 min

Peg Condition	Each time a Request message from a downstream peer is rejected by a Local node because an application routing rule Action is set to "Send Answer". **Note:** The "connection measurement" is associated with the Diameter Connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action necessary

RxDecodeFailure

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Number of Request messages rejected from a downstream peer because the message could not be decoded.
Collection Interval	5 min
Peg Condition	Request message from a downstream peer is rejected by a Local Node because it could not be decoded. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

1. These protocol violations are caused by the originator of the message (identified by the Origin-Host AVP in the message) or the peer that forwarded the message to this node (identified by the peer name) and cannot be fixed using the application.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxDOCDiscardMp

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress messages that were discarded due to local DA-MP danger of CPU congestion.
Collection Interval	5 min
Peg Condition	Pegged for each message discarded due to DA-MP danger of CPU congestion.

Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage** > **Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage** > **KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage** > **KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxMessageLooping

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages from a downstream peer rejected by a Local Node because message looping was detected (FQDN of the Local Node associated with the ingress transport connection matched a FQDN in the messages' Route-Record AVPs).
Collection Interval	5 min
Peg Condition	Request message from a downstream peer is rejected by a Local Node with Result-Code 3005 (DIAMETER_LOOP_DETECTED). The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

1. An excessive amount of Request message rerouting may have been triggered by either connection failures or Answer timeouts. The status of connections should be examined from the **Diameter** > **Maintenance** > **Connections** page.
2. If no additional congestion alarms are asserted, the routing Answer task may be experiencing a problem preventing it from processing messages from its Answer Message Queue. The alarm log should be examined using the **Alarms & Events** page.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxNoRoutesFound

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Number of Request messages from a downstream peer rejected by a Local Node because no routes were available for routing the message.
Collection Interval	5 min
Peg Condition	Request message from a downstream peer is rejected by a Local Node because no routes were available for routing the message. A No Routes Available condition occurs when: • A Route List was selected via a Peer Routing Rule or implicit routing but its Operational Status was Unavailable • Implicit routing was invoked and the peer's Operational Status was not Available and an alternate implicit route was not provisioned for the peer The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

1. If the message matched a Peer Routing Rule but none of the peers in the Route List were eligible for routing the message because either their operation state was Unavailable, the Application ID in the Request message did not match an application ID supported by the peer, or the peer had previously processed the message as defined by the Route-Record AVPs in the message:
   a) Verify that IP network connectivity exists between the MP server and the peers.
   b) Check the event history logs for additional DIAM events or alarms from this MP server.
   c) Verify that the peers in the Route List are not under maintenance. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.
2. If the message was addressed to a peer directly connected to the Local Node via the Destination-Host AVP but the peer's operational status was Unavailable or the alternate path to the peer, designated by the peer's alternate implicit route was either not provisioned or was Unavailable:
   a) Verify that IP network connectivity exists between the MP server and the adjacent servers.
   b) Check the event history logs for additional DIAM events or alarms from this MP server.
   c) Verify that the peer is not under maintenance.
3. If the message was addressed to a peer directly connected to the Local Node via the Destination-Host AVP but the application ID in the Request message did not match an Application ID supported by the peer:
   a) The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.

b) There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
c) A software defect may exist resulting in PTR buffers not being deallocated to the pool. This alarm should not normally occur when no other congestion alarms are asserted. The alarm log should be examined from the **Alarms & Events** page.

4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxNoRulesFailure

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages from a downstream peer rejected by a Local Node because no Peer Routing Rule was found.
Collection Interval	5 min
Peg Condition	Request message from a downstream peer is rejected by a Local Node because no Peer Routing Rules were found in the peer routing table and the message was not addressed to a peer (either Destination-Host AVP was absent or Destination-Host AVP was present but was not a peer's FQDN) or a configured Realm/Application-Id (via the Realm Route Table). The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage** > **Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. If no additional congestion alarms are asserted, the Routing Answer Task may be experiencing a problem preventing it from processing messages from its Answer Message Queue. The alarm log should be examined from the **Alarms & Events** page.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxPrtRuleRejection

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages from a downstream peer rejected by a Local Node because a Peer Routing Rule action is set to "Send Answer" or "Abandon with No Answer".
Collection Interval	5 min
Peg Condition	Request message from a downstream peer rejected by a Local Node because a Peer Routing Rule action is set to "Send Answer" or "Abandon with No Answer". The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Site

Recovery

No action required.

RxRejectedAll

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages rejected from a downstream peer by a Local Node (all reasons).
Collection Interval	5 min
Peg Condition	When measurement ID *RxRejectedConnCongestion*, *RxDecodeFailure*, *RxMessageLooping*, *RxAllDrop*, *RxNoRulesFailure*, *RxNoRoutesFound*, *RxTransactionTimeout*, *RxPrtRuleRejection*, or *RxRejectedOther* is pegged.
Measurement Scope	Server Group

Recovery

No action required.

RxRejectedOther

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of Request messages from a downstream peer rejected by a Local Node for any reason other than those identified by measurements *RxDecodeFailure*, *RxMessageLooping*, *RxAllDrop*, *RxNoRulesFailure*, *RxNoRoutesFound*, *RxTransactionTimeout*, *RxArtRuleRejection*, or *RxPrtRuleRejection*.
Collection Interval	5 min
Peg Condition	Request message from a downstream peer rejected by a Local Node for any reason other than those identified by measurements *RxDecodeFailure*, *RxMessageLooping*, *RxAllDrop*, *RxNoRulesFailure*, *RxNoRoutesFound*, *RxTransactionTimeout*, *RxArtRuleRejection*, or *RxPrtRuleRejection*. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxRequestMsgQueueFullDiscard

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress Diameter Request messages that were discarded because the Request Message Queue was full.
Collection Interval	5 min
Peg Condition	For each Request message discarded because the Request Message Queue was full. The connection measurement is associated with the connection from which the message was received.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxTransactionTimeout

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages from a downstream peer rejected by a Local Node because maximum message reroutes are exceeded.
Collection Interval	5 min
Peg Condition	Request message from a downstream peer is rejected by a Local Node because maximum number of message reroutes was exceeded. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

1. If the maximum number of message reroutes is set too low (e.g., zero) then any failure trigger message reroute will fail. The user-configurable value is set using the **Diameter** > **Configuration** > **System Options** page.
2. If the user-configurable answer response timer is set too low the timer expires before an Answer response is received. The user-configurable value is set using the **Diameter** > **Configuration** > **System Options** page.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxLongTimeoutPtrListEmpty

Measurement ID	10296
Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress Diameter Request messages that were discarded because no Long Timeout PTR Buffers were available.
Collection Interval	5 min
Peg Condition	When any DRL thread within the Diameter Process needs to allocate a Long Timeout PTR Buffer from the Long Timeout PTR Buffer Pool and the number of allocated Long Timeout PTRs from a Long Timeout PTR Buffer Pool is less than the maximum configured capacity of Long Timeout PTR Buffers then: • A Long Timeout PTR Buffer shall be allocated from the Long Timeout PTR Buffer Pool

- The count for the number of allocated Long Timeout PTRs from a Long Timeout PTR Buffer Pool shall be incremented by one.

Measurement Scope Server Group

Recovery

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or Diameter Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. If the problem persists, contact *My Oracle Support (MOS)*.

TxPtrListEmpty

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress Diameter Request messages that were discarded because no PTR Buffers were available.
Collection Interval	5 min
Peg Condition	When any DRL thread within the Diameter Process needs to allocate a PTR Buffer from the PTR Buffer Pool and the number of allocated PTRs from a PTR Buffer Pool is less than the maximum configured capacity of PTR Buffers then: • A PTR Buffer shall be allocated from the PTR Buffer Pool • The count for the number of allocated PTRs from a PTR Buffer Pool shall be incremented by one.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or Diameter Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxRerouteQueueFullReject

Measurement Group	Diameter Ingress Transaction Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of egress Diameter Request messages that were rejected because the Reroute Queue was full.
Collection Interval	5 min
Peg Condition	For each Request message rejected because the Reroute Queue was full. The connection measurement is associated with the connection the Request message was received from.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Diameter Ingress Transaction Performance measurements

The Diameter Ingress Transaction Performance measurement report contains measurements providing information about the outcome of Diameter transactions received from downstream peers.

Table 39: Diameter Ingress Transaction Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxConnRequestMsgs	Number of routable Request messages received on the connection	5 min
TxAnswer1xxx	Ingress Answer messages from peers successfully routed - Result-Code value 1xxx (Informational)	5 min
TxAnswer2xxx	Answer messages from upstream peers successfully routed to downstream peers - Result-Code value 2xxx (Success)	5 min

Measurement Tag	Description	Collection Interval
TxAnswer3xxx	Answer messages from upstream peers successfully routed to downstream peers - Result-Code value 3xxx (Protocol Error)	5 min
TxAnswer4xxx	Answer messages from upstream peers successfully routed to downstream peers - Result-Code value 4xxx (Transient Failure)	5 min
TxAnswer5xxx	Answer messages from upstream peers successfully routed to downstream peers - Result-Code value 5xxx (Permanent Failure)	5 min
TxAnswerFailure	Expected Answer responses from a peer or Answer responses created by a Local Node which were not successfully routed to a downstream peer (for any reason).	5 min
TxAnswerLocalNode	Answer messages created by Local Node successfully routed to downstream peers (all Result-Code values)	5 min
TxAnswerOther	Answer messages from upstream peers successfully routed to downstream peers - Result-Code value not 1000-5999	5 min

RxConnRequestMsgs

Measurement Group Diameter Ingress Transaction Performance, Diameter Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description The number of routable Request messages received on the connection.

Collection Interval 5 min

Peg Condition Pegged when a Diameter request message is received from the peer.

Measurement Scope Server Group

Recovery

No action required.

TxAnswer1xxx

Measurement Group Diameter Ingress Transaction Performance

Measurement Type Simple

Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 1xxx.
Collection Interval	5 min
Peg Condition	Answer message received from a peer that was successfully sent to the DCL/RCL with a Result-Code value in the range of 1000 - 1999. The connection measurement is associated with the connection to which the message was routed.
Measurement Scope	Server Group

Recovery

No action required.

TxAnswer2xxx

Measurement Group	Diameter Ingress Transaction Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 2xxx.
Collection Interval	5 min
Peg Condition	Answer message received from a peer that was successfully sent to the DCL/RCL with a Result-Code value in the range of 2000 - 2999. The connection measurement is associated with the connection to which the message was routed.
Measurement Scope	Server Group

Recovery

No action required.

TxAnswer3xxx

Measurement Group	Diameter Ingress Transaction Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 3xxx (Protocol Error).
Collection Interval	5 min
Peg Condition	Answer message received from a peer that was successfully sent to the DCL//RCL with a Result-Code value in the range of 3000 - 3999. The connection measurement is associated with the connection to which the message was routed.
Measurement Scope	Server Group

Recovery

No action required.

TxAnswer4xxx

Measurement Group	Diameter Ingress Transaction Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 4xxx (Transient Failure).
Collection Interval	5 min
Peg Condition	Answer message received from a peer that was successfully sent to the DCL/RCL with a Result-Code value in the range of 4000 - 4999. The connection measurement is associated with the connection to which the message was routed.
Measurement Scope	Server Group

Recovery

No action required.

TxAnswer5xxx

Measurement Group	Diameter Ingress Transaction Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 5xxx (Permanent Failure).

Collection Interval	5 min
Peg Condition	Answer message received from a peer that was successfully sent to the DCL/RCL with a Result-Code value in the range of 5000 - 5999. The connection measurement is associated with the connection to which the message was routed.
Measurement Scope	Server Group

Recovery

No action required.

TxAnswerFailure

Measurement Group	Diameter Ingress Transaction Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of (expected) Answer responses from a peer and Answer responses created by a Local Node which were not successfully routed to a downstream peer (for any reason). **Note:** An expected Answer response from a peer is an Answer response for which a pending transaction existed.
Collection Interval	5 min
Peg Condition	Any time the DCL/RCL fails to queue an Answer response. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

TxAnswerLocalNode

Measurement Group	Diameter Ingress Transaction Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Answer responses from a Local Node that were successfully routed to a downstream peer (all Result-Code values).
Collection Interval	5 min
Peg Condition	Any time the DCL/RCL successfully creates and queues an Answer response to DCL in response to a Request message received from a downstream peer.

	The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

TxAnswerOther

Measurement Group	Diameter Ingress Transaction Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value not in the range of 1000-5999.
Collection Interval	5 min
Peg Condition	Answer message received from a peer which was successfully sent to the DCL/RCL with either a Result-Code value not in the range of 1000 - 5999 or without a Result-Code AVP. The connection measurement is associated with the connection to which the message was routed.
Measurement Scope	Server Group

Recovery

No action required.

Diameter Performance measurements

The Diameter Performance measurement report contains measurements that provide performance information that is specific to the Diameter protocol.

Table 40: Diameter Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvPerConnPtrQueueAvg	The average length of the PTR queue for a connection during the collection interval.	5 min
EvPerConnPtrQueuePeak	The maximum length of the PTR queue for a connection during the collection interval	5 min

Measurement Tag	Description	Collection Interval
EvRemoteBusy	Number of times that a connection's Remote Busy State changed from "Not Busy" to "Busy".	5 min
EvTransSuccessByExternalNode	Number of transactions where an external node sends success (2xxx) Answer to Diameter Node.	5 min
MpEvRadiusRoutedMsgs	Number of ingress RADIUS messages processed by DRL, including Rerouting and Message Copy.	5 min
RoutingMsgs	The number of messages processed by DRL , including Rerouting and Message Copy.	5 min
RxAnswerExpectedAll	Number of valid Answer messages received from an upstream peer that were associated with a pending transaction.	5 min
RxAnswerExpectedAllMp	Number of valid Answer messages received from an upstream peer that were associated with a pending transaction.	5 min
RxAnswerExpectedRoutedMP	Number of valid Answer messages received from an upstream peer that were successfully routed to a downstream peer.	5 min
RxConnRequestMsgs	Number of routable Request messages received on the connection.	5 min
RxDiam2DiamTransactionsCount	Total number of Diameter to Diameter transactions.	5 min
RxRequestMsgsMp	Number of Request messages received.	5 min
RxRequestNoErrors	Transactions successfully processed on one routing attempt.	5 min
RxRequestNoErrorsMp	Number of transactions successfully processed on one routing attempt.	5 min
TmConnAvail	Total time in seconds that the connection state was AVAILABLE during the measurement period.	5 min
TmResponseTimeDownstream	Average downstream transaction response time.	5 min

Measurement Tag	Description	Collection Interval
TmResponseTimeDownstreamMp	Average time (in milliseconds) from when routing receives a Request message from a downstream peer to the time that an Answer response is sent to that downstream peer.	5 min
TmResponseTimeUpstream	Average upstream transaction response time.	5 min
TxConnAnswerMsgs	Number of routable Answer messages successfully sent on the connection.	5 min
TxConnRequestMsgs	Number of routable Request messages successfully sent on the connection.	5 min
TxRequestSuccessAllMp	Number of Request messages successfully routed to a peer.	5 min

EvPerConnPtrQueueAvg

Measurement Group Diameter Performance

Measurement Type Average

Measurement Dimension Arrayed (by Connection ID)

Description The average length of the PTR queue for a connection during the collection interval.

Collection Interval 5 min

Peg Condition Each time a PTR is dequeued or enqueued on the connection's PTR queue, the average queue length is calculated using the COMCOL average measurement type method.

Measurement Scope Server Group

Recovery

No action required.

EvPerConnPtrQueuePeak

Measurement Group Diameter Performance

Measurement Type Max

Measurement Dimension Arrayed (by Connection ID)

Description The maximum length of the PTR queue for a connection during the collection interval.

Collection Interval	5 min
Peg Condition	Each time a PTR is dequeued or enqueued on the connection's PTR queue, the maximum queue length is calculated using the COMCOL maximum measurement type method.
Measurement Scope	Server Group

Recovery

No action required.

EvRemoteBusy

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	
Description	Number of times that a connection's Remote Busy State changed from "Not Busy" to "Busy".
Collection Interval	5 min
Peg Condition	Each time that DRL changes the connection's "Remote Busy State" to "Busy".
Measurement Scope	Server Group

Recovery

1. Use **Main Menu** > **Diameter** > **Configuration** > **Connections** to examine and modify the "Remote Busy Abatement Timeout" attribute setting for the connection.

   If the total duration that the connection is congested is small (as defined by TmRemoteBusy), then the user-configurable "Remote Busy Abatement Timeout" attribute for the connection may be set too small.
2. The ingress message rate to the connection is excessive.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvTransSuccessByExternalNode

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of transactions where an external node sends success (2xxx) Answer to Diameter Node.
Collection Interval	5 min
Peg Condition	When DSR successfully relays an answer response received from upstream external node to a downstream external node and the answer contains a success response (i.e. a Result-Code AVP value in the range of 2000-2999)

Measurement Scope Server Group

Recovery

No action required.

MpEvRadiusRoutedMsgs

Measurement Group MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of ingress RADIUS messages processed by DRL, including Rerouting and Message Copy.

Collection Interval 5 min

Peg Condition This measurement should be incremented as per the following conditions.

- Ingress RADIUS Request processing resulting in a Request being routed upstream (with or without local DSR application processing of the Request)
- Ingress RADIUS Response processing resulting in forwarding of Answer/Response downstream (with or without local DSR application processing of the Response)
- Ingress Request processing resulting in Answer message sent by DSR to originator (with or without local DSR application processing of the Request)
- Ingress RADIUS Request discarded due to validation error or overload
- Ingress RADIUS Response discarded due to validation error
- Initial copy and transmit of a RADIUS Request to a DAS
- Ingress RADIUS Response triggering reroute of the pending Request message (including Answers from DAS for copied RADIUS Requests)
- RADIUS Request reroute due to connection failure or Answer/Response timeout (including reroute of copied Requests to DAS for same reasons)
- Ingress Answer from a DAS terminated by DSR due to RADIUS Request copy completion or termination

Note: This is the functional equivalent to *RoutingMsgs* but for ingress RADIUS (only) messages. Measurement *RoutingMsgs* measures all ingress equivalent messages (Diameter and RADIUS).

Measurement Scope Network

Recovery

No action required.

RoutingMsgs

Measurement Group Diameter Performance

Measurement Type Simple

Measurement Dimension	Single
Description	The number of Diameter and RADIUS messages processed by DRL, including Rerouting and Message Copy.
Collection Interval	5 min
Peg Condition	This measurement should be incremented as per the following conditions. • Ingress RADIUS Request processing resulting in a Request being routed upstream (with or without local DSR application processing of the Request) • Ingress RADIUS Response processing resulting in forwarding of Answer/Response downstream (with or without local DSR application processing of the Response) • Ingress Request processing resulting in Answer message sent by DSR to originator (with or without local DSR application processing of the Request) • Ingress RADIUS Request discarded due to validation error or overload • Ingress RADIUS Response discarded due to validation error • Initial copy and transmit of a RADIUS Request to a DAS • Ingress RADIUS Response triggering reroute of the pending Request message (including Answers from DAS for copied RADIUS Requests) • RADIUS Request reroute due to connection failure or Answer/Response timeout (including reroute of copied Requests to DAS for same reasons) • Ingress Answer from a DAS terminated by DSR due to RADIUS Request copy completion or termination
Measurement Scope	Network

Recovery

No action required.

RxAnswerExpectedAll

Measurement Group	Diameter Egress Transaction, Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.
Collection Interval	5 min
Peg Condition	When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction is found. The connection measurement is associated with the connection from which the Answer message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxAnswerExpectedAllMp

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.
Collection Interval	5 min
Peg Condition	When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction is found. The connection measurement is associated with the connection from which the Answer message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxAnswerExpectedRoutedMp

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of valid Answer messages received from an upstream peer that were successfully routed to a downstream peer.
Collection Interval	5 min
Peg Condition	
Measurement Scope	Server Group

Recovery

No action required.

RxConnRequestMsgs

Measurement Group	Diameter Ingress Transaction Performance, Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of routable Request messages received on the connection.
Collection Interval	5 min
Peg Condition	Pegged when a Diameter request message is received from the peer.
Measurement Scope	Server Group

Recovery

No action required.

RxDiam2DiamTransactionsCount

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of Diameter to Diameter transactions
Collection Interval	5 min
Peg Condition	When an answer message is received from an upstream peer or an answer message is generated by DRL to downstream peer for which pending transaction record has been allocated previously
Measurement Scope	Server Group

Recovery

No action required.

RxRequestMsgsMp

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Request messages received.
Collection Interval	5 min
Peg Condition	Pegged when a Diameter request message received is from the peer. This measurement is pegged for all requests accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.
Measurement Scope	Server Group

Recovery

No action required.

RxRequestNoErrors

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of transactions successfully processed on one routing attempt.
Collection Interval	5 min
Peg Condition	When an Answer response from a peer is successfully queued to the DCL/RCL for a transaction and the total number of times that the corresponding Request message has been forwarded to a peer equals "1". The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required

RxRequestNoErrorsMp

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of transactions successfully processed on one routing attempt.
Collection Interval	5 min
Peg Condition	When an Answer response from a peer is successfully queued to the DSR for a transaction and the total number of times that the corresponding Request message has been forwarded to a peer equals "1". The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

TmConnAvail

Measurement Group	Diameter Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Total time in seconds that the connection state was available during the measurement period.
Collection Interval	5 min
Peg Condition	Pegging started when the connection state is Available. Pegging stopped when the connection state is Unavailable or Degraded.
Measurement Scope	Server Group

Recovery

1. If this measurement varies significantly from the total time in the collection period, examine the Alarm History to determine the reason(s) that the connection was Unavailable or Degraded.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmHoldTimeDownstreamMp

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The time (in milliseconds) from when a pending transaction record is allocated by DRL and until DRL stops processing the transaction and deallocates the PTR.
Collection Interval	5 min
Peg Condition	• The time interval for each transaction starts when DRL allocates and stores PTR for an ingress Request message from a downstream peer • The time interval for each transaction when DRL stops processing and the transaction deallocates the PTR and sends an answer response to DCL This includes Answer messages received from an upstream peers and those generated by DRL.
Measurement Scope	Server Group

Recovery

No action required.

TmRemoteBusy

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed

Description	Total time (in milliseconds) that a connection's "Remote Busy State" was "Busy".
Collection Interval	5 min
Peg Condition	Each time that DRL changes the connection's "Remote Busy State" to "Busy". Each time interval stops when DRL changes the connection's "Remote Busy State" to "Not Busy"
Measurement Scope	Server Group

Recovery

1. The ingress message rate to the connection is excessive.

   Under normal circumstancea, TmRemoteBusy should be very small. If it is large, then the ingress message traffic to the connection may be exceeding the ability of the peer to process the traffic from this connection. The following measurements may be useful in evaluating the ingress traffic for this connection:

   - TxAll - measures the total routable and non-routable measurements which were sent on the connection.
   - TxRequestSuccessAllConn - measures the total number of Request messages forwarded to the connection.

   a) An excessive number of messages may have been rerouted to this connection. Examine Measurement-IDs 10050-10054.
   b) Route Group configurable options can be viewed and modified using **Main Menu** > **Diameter** > **Configuration** > **Route Groups**.

      The connection may be a member of one or more Route Groups whose peer or connection "weight" may be mis-configured or need modification.

   c) Use **Main Menu** > **Diameter** > **Configuration** > **Route Groups** to examine Connection status.

      The connection may be a member of one or more Route Groups containing failed connections. When this occurs, the traffic will be routed to the remaining connections in those route groups.

   d) The peer node or this particular connection to the peer node may be under-engineered for the ingress traffic load.
   e) The total offered load to this connection may have peaked during a short time duration due to larger than normal network usage patterns. This measurement should be view over multiple measurement intervals to look for trends.

2. Use **Main Menu** > **Diameter** > **Configuration** > **Connections** to examine and modify the "Remote Busy Abatement Timeout" attribute setting for the connection.

   If the total duration that the connection is congested is small (as defined by TmRemoteBusy), then the user-configurable "Remote Busy Abatement Timeout" attribute for the connection may be set too small.

3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmResponseTimeDownstream

Measurement Group	Diameter Performance
Measurement Type	Average

Measurement Dimension	Arrayed (by Connection ID)
Description	Average time (in milliseconds) from when routing receives a Request message from a downstream peer to the time that an Answer response is sent to that downstream peer.
Collection Interval	5 min
Peg Condition	Time interval for each transaction starts when the DRL successfully decodes an ingress Request message from a downstream peer. Time interval for each transaction stops when the DRL attempts to send an Answer response to the DCL/RCL. This includes Answer messages received from upstream peers and those generated by the DRL. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

1. If the average is significantly larger than what is considered normal, then additional measurements, such as measurement *TmResponseTimeUpstream*, should be consulted to assist in determining the source of the delay.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmResponseTimeDownstreamMp

Measurement Group	Diameter Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average time (in milliseconds) from when routing receives a Request message from a downstream peer to the time that an Answer response is sent to that downstream peer.
Collection Interval	5 min
Peg Condition	Time interval for each transaction starts when the DSR successfully decodes an ingress Request message from a downstream peer. Time interval for each transaction stops when the DSR attempts to send an Answer response. This includes Answer messages received from upstream peers and those generated by the DSR. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

TmResponseTimeUpstream

Measurement Group	Diameter Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Connection ID)
Description	Average time (in milliseconds) from when routing forwards a Request message to an upstream peer to the time that an Answer response is received.
Collection Interval	5 min
Peg Condition	Time interval for each transaction starts when the DRL successfully queues a Request message to the DCL/RCL. Time interval for each transaction stops when the DRL receives an Answer response for the pending transaction associated with the forwarded Request message. The connection measurement is associated with the connection the Request message is sent to. **Note:** This measurement excludes transactions which are aborted due to a failure (e.g., timer PENDING-ANSWER-TIMER or PENDING-TRANSACTION-TIMER expiration or transport connection failure).
Measurement Scope	Server Group

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxConnAnswerMsgs

Measurement Group	Diameter Egress Transaction, Diameter Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of routable Answer messages successfully sent on the connection.
Collection Interval	5 min
Peg Condition	Pegged when a Diameter Answer message is sent to the peer.
Measurement Scope	Server Group

Recovery

No action required.

TxConnRequestMsgs

Measurement Group	Diameter Egress Transaction, Diameter Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of routable Request messages successfully sent on the connection.
Collection Interval	5 min
Peg Condition	Pegged when a Diameter request message is sent to the peer.
Measurement Scope	Server Group

Recovery

No action required.

TxRequestSuccessAllMP

Measurement Group	Diameter Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Request messages successfully routed to a peer.
Collection Interval	5 min
Peg Condition	When the DSR successfully queues a Request message. The connection measurement is associated with the connection to which the Request message was sent.
Measurement Scope	Server Group

Recovery

No action required.

Diameter Rerouting measurements

The Diameter Rerouting measurement report is a set of measurements which allows the user to evaluate the amount of message rerouting attempts which are occurring, the reasons for why message rerouting is occurring, and the success rate of message rerouting attempts.

Table 41: Diameter Rerouting Measurement Report Fields

Measurement Tag	Description	Collection Interval
MpRerouteToRequestRatio	Ratio of Request reroutes due to Answer Result-Code or Answer timeout to Total Requests routed by DSR.	5 min

Measurement Tag	Description	Collection Interval
RxRerouteAnswerRsp	Answer messages received associated with rerouted Request messages	5 min
RxRerouteAnswerRspMp	Number of valid Answer messages received from an upstream peer that were associated with a pending rerouted transaction.	5 min
TxRerouteAnswerResponse	Number of message rerouting attempts triggered by the receipt of an Answer response Result-Code value which is a candidate for message rerouting.	5 min
TxRerouteAnswerTimeout	Rerouting attempts triggered by a timeout on the Answer response.	5 min
TxRerouteAttempts	Total number of message rerouting attempts.	5 min
TxRerouteConnFailure	Rerouting attempts triggered by a connection failure.	5 min
TxRerouteSuccessSent	Message rerouting attempts that were successfully rerouted.	5 min

MpRerouteToRequestRatio

Measurement Group Diameter Rerouting

Measurement Type Average

Measurement Dimension Single

Description Ratio of Request reroutes due to Answer Result-Code and/or Answer timeout to Total Requests routed by DSR.

Collection Interval 5 min

Peg Condition The numerator of this measurement is pegged when request message reroute is triggered under these conditions:

- When DRL does not receive an answer from an upstream Peer Node within the PAT expiry.
- When DRL receives an Answer response from an upstream Peer Node and it finds a match in the Reroute on Answer table.

The denominator of this measurement is pegged under these scenarios:

- First attempt of Request routing
- First attempt of Message Copy Request routing

Measurement Scope Site

Recovery

No action required.

RxRerouteAnswerRsp

Measurement Group	Diameter Rerouting
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of valid Answer messages received from an upstream peer that were associated with a pending rerouted transaction.
Collection Interval	5 min
Peg Condition	When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction associated with a rerouted message is found. The connection measurement is associated with the connection from which the Answer message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxRerouteAnswerRspMp

Measurement Group	Diameter Rerouting
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of valid Answer messages received from an upstream peer that were associated with a pending rerouted transaction.
Collection Interval	5 min
Peg Condition	When the DSR receives an Answer message event with a valid Transport Connection ID for which a pending transaction associated with a rerouted message is found. The connection measurement is associated with the connection from which the Answer message was received.
Measurement Scope	Server Group

Recovery

No action required.

TxRerouteAnswerResponse

Measurement Group	Diameter Rerouting
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of message rerouting attempts triggered by the receipt of an Answer response Result-Code value that is a candidate for message rerouting.
Collection Interval	5 min
Peg Condition	When the DSR receives an Answer response with a Result-Code value that is a candidate for message rerouting. The connection measurement is associated with the upstream connection from which the Answer response was received.
Measurement Scope	Server Group

Recovery

No action required.

TxRerouteAnswerTimeout

Measurement Group	Diameter Rerouting
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of message rerouting attempts triggered by a timeout (PENDING-ANSWER-TIMER) on the Answer response.
Collection Interval	5 min
Peg Condition	When timer PENDING-ANSWER-TIMER expires and the DSR attempts to reroute a Request message.
Measurement Scope	Server Group

Recovery

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before a Answer response is received. The user-configurable value is set from the **Diameter** > **Configuration** > **System Options** page.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxRerouteAttempts

Measurement Group	Diameter Rerouting
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Total number of message rerouting attempts.
Collection Interval	5 min
Peg Condition	When the DSR attempts to reroute a Request message routed via a Route List for one of the following reasons: • Transport connection fails

- PENDING-ANSWER-TIMER expires
- Answer response Result-Code plus application ID matches user-defined values for message rerouting

This measurement will be pegged when any of the following measurement IDs are pegged: *TxRerouteConnFailure*, *TxRerouteAnswerTimeout*, *TxRerouteAnswerResponse*.

The connection measurement is associated with the upstream connection from which rerouting was triggered.

Measurement Scope

Recovery

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before an Answer response is received. The user-configurable value is set from the **Diameter** > **Configuration** > **System Options** page.
2. Connection status can be monitored from the **Diameter** > **Maintenance** > **Connections** page.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxRerouteConnFailure

Measurement Group	Diameter Rerouting
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of message rerouting attempts triggered by a connection failure.
Collection Interval	5 min
Peg Condition	For each Request message rerouting attempt invoked by the receipt of a valid Connection Down event notification from the DSR.
Measurement Scope	Server Group

Recovery

1. Connection status can be monitored from the **Diameter** > **Maintenance** > **Connections** page.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxRerouteSuccessSent

Measurement Group	Diameter Rerouting
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of message rerouting attempts that were successfully rerouted.
Collection Interval	5 min

Peg Condition	When the DSR successfully reroutes a Request message. The connection measurement is associated with the upstream connection from which rerouting was triggered.
Measurement Scope	Server Group

Recovery

No action required.

DM-IWF Exception measurements

The DM-IWF Exception measurement report contains measurements providing information about transaction processing exceptions that are specific to the MAP-Diameter IWF Application running on a DA-MP.

Measurement Tag	Description	Collection Interval
TxMtoDRoutingFail	Number of MAP-to-Diameter transactions which could not be routed to the Diameter network due to a failure.	5 min
TxDtoMRoutingFail	Number of Diameter-to-MAP transactions which could not be routed to a SS7-MP due to a failure.	5 min
EvDtoMtimeout	Number of Diameter-to-MAP transactions failures due to time-out on DA-MP.	5 min
RxDtoMReject	Number of Diameter-to-MAP transactions either rejected via Answer response or discarded by DM-IWF due to a failure.	5 min
EvDmiwfPtrPoolExceeded	Number of transactions rejected - no PTRs	5 min
RxSS7MPAnswerUnexpected	Number of Unexpected Answer messages received from SS7-MPs	5 min
EvMdIwfSvcCongest	Number of Diameter-to-MAP Request messages that could not be forwarded to MD-IWF Routed Service due to service congestion	5 min
EvMdIwfError	Number of Diameter-to-MAP Request messages forwarded to MAP Routed Service that received error notification	5 min
EvMdIwfConnExhausted	Number of Diameter messages that could not be forwarded to MD-IWF (SS7-MP) due to failure to enqueue message to ComAgent	5 min
EvDmIwfSS7MpFailure	Number of Diameter-to-MAP Request messages forwarded to MD-IWF Routed Service that failed to be Answered due to SS7-MP failure	5 min
RxDiscOnError	Number of Diameter messages that were discarded on error	5 min

Measurement Tag	Description	Collection Interval
EvDmIwfTxFwdFail	Number of Diameter messages that could not be forwarded by DM-IWF to DRL due to DRL queue exhaustion	5 min
EvDmiwfMsgSizeExceeded	Number of Diameter messages received from DRL that got rejected because the Diameter message exceeded supported maximum "Diameter Max Message Size"	5 min
RxDmiwfTransactionsRejected	Number of interworking attempts that failed due to action initiated by DM-IWF (not due to far end).	5 min
DmIwfOcDrop	The number of DM-IWF originated messages discarded or rejected by overload control.	5 min

TxDmiwfMtoDRoutingFail

Measurement Group DM-IWF Exception

Measurement Type Simple

Measurement Dimension Single

Description Number of MAP-to-Diameter transactions which could not be routed to the Diameter network due to a failure.

Collection Interval 5 min

Peg Condition

- Whenever DM-IWF is unable to successfully forward a Request message received from a SS7-MP due to a failure.
- Whenever the Request message is not routed to a Diameter Peer Node due to a routing error (either DRL or another DSR Application initiates an Answer response).
- Whenever DM-IWF receives an Answer response from DRL and the Application-Data stack event parameter "Message Source ID" is set to "DRL" or "APP".

Measurement Scope Site

Recovery

1. Examine the Admin State of the DM-IWF DSR application. Verify that the DM-IWF DSR application is Enabled via the **Diameter** > **Maintenance** > **Applications** screen.
2. If the DM-IWF DSR application is enabled, this measurement is pegged when either DM-IWF internal resources are exhausted or DSR's internal request processing queue is highly congested. Examine the following additional information to determine which resources are exhausted and/or whether the DSR internal queue is congested:

   - Alarms and Events from the **Alarms & Events** screen (Alarm 33005 - DM-IWF PTR Pool Utilization. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm)
   - Measurement *EvDmiwfPtrPoolExceeded*
   - Measurement *EvDmIwfTxFwdFail*

3. Evaluate the cause of resource exhaustion or internal queue congestion and take corrective action. Examine the following additional information to assist with determination of the cause of resource exhaustion:
   - Alarms and Events from the **Alarms & Events** screen
   - The rate of messages being processed by DM-IWF from the **Status & Manage** > **KPIs** page
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxDmiwfDtoMRoutingFail

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Diameter-to-MAP transactions which could not be routed to a SS7-MP.
Collection Interval	5 min
Peg Condition	Whenever DM-IWF is unable to successfully forward a Request message received from DRL to a SS7-MP due to a failure.
Measurement Scope	Site

Recovery

1. Examine whether DM-IWF resources are exhausted.
   - Alarms and Events from the **Alarms & Events** screen (Alarm 33005 - DM-IWF PTR Pool Utilization. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm).
   - Measurement *EvDmiwfPtrPoolExceeded*
2. If DM-IWF resources are exhausted, evaluate the cause of resource exhaustion and take corrective action. Examine the following additional information to assist with determination of the cause of resource exhaustion
   - Alarms and Events from the **Alarms & Events** screen
   - The rate of messages being processed by DM-IWF from the **Status & Manage** > **KPIs** page
3. Examine whether the MAP routed service is congested, by reviewing the "MDIWFSvc" Routed Service Provider's states for via **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status** screen. If the routed service is congested, the number of SS7-MPs that act as providers for the MAP Routed Service might be insufficient to service the offered ingress load. Individual service provider status can be monitored from **Main Menu** > **Communication Agent** > **Maintenance** > **Routed Services Status**.
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvDmiwfDtoMtimeout

Measurement Group	DM-IWF Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Diameter-to-MAP transaction failures due to time-out on a DA-MP.
Collection Interval	5 min
Peg Condition	Each DM-IWF abandons a Diameter-to-MAP transaction due to a DM-IWF Pending Answer Timer expiration.
Measurement Scope	Site

Recovery

1. Diameter-to-MAP timeouts are most likely caused by excessive SS7 network delays. Determine if the MAP Origination Transaction Timer value is set too low via **Main Menu** > **MAP Interworking** > **Configuration** > **Options (MF-IWF tab)**.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvDmiwfPtrPoolExceeded

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Transaction Direction)
Description	Number of transactions rejected - no PTRs
Collection Interval	5 min
Peg Condition	Each time DM-IWF fails to allocate a PTR for either a Diameter-to-MAP or MAP-to-Diameter transaction.
Measurement Scope	Site

Recovery

1. The maximum number of PTRs on a DA-MP is set to a default value, but may need to be increased.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxDmiwfSS7MPAnswerUnexpected

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Unexpected Answer messages received from SS7-MPs
Collection Interval	5 min
Peg Condition	Each time an Answer message received from an MD-IWF which was discarded because the pending transaction associated with the message could not be found.

Measurement Scope	Site

Recovery

1. If this event is occurring frequently, the timer may be set too low. The timer value can be viewed via **Main Menu** > **MAP Interworking** > **Configuration** > **System Options**.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

EvMdIwfSvcCongest

Recovery

1. The number of SS7-MPs that act as providers for the MD-IWF Routed Service might be insufficient to service the offered ingress load.
2. If the problem occurs frequently, it is recommended to contact *My Oracle Support (MOS)*.

EvMdIwfError

Recovery

If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvMdIwfConnExhausted

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Message Type)
Description	Number of Diameter messages that could not be forwarded to MD-IWF (SS7-MP) due to failure to enqueue message to ComAgent.
Collection Interval	5 min
Peg Condition	For each Request forwarded to MD-IWF that received a ComAgent Error response
Measurement Scope	Site

Recovery

If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxDiscOnError

Measurement Group	DM-IWF Exception
Measurement Type	Arrayed (by Error Condition)
Measurement Dimension	Simple

Description	The number of Diameter messages that were discarded on error for the error conditions: • 0: Encode decode error, D-to-M Request • 1: Encode decode error, D-to-M Answer • 2: Encode decode error, M-to-D Request • 3: Encode decode error, M-to-D Answer
Collection Interval	5 min
Peg Condition	When a Diameter message is discarded on error
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for further assistance.

EvDmIwfTxFwdFail

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Message Type)
Description	Number of Diameter messages that could not be forwarded by DM-IWF to DRL due to DRL queue exhaustion **Note:** This measurement should not occur unless the MP is experiencing local congestion as indicated by Alarms 22000 - Local MP Congestion, 22201 - Ingress Message Rate, 22204 - Request Message Queue Utilization, and 22205 - Answer Message Queue Utilization. Refer to the *DSR Alarms and KPIs Reference* for details about these alarms.
Collection Interval	5 min
Peg Condition	Any time DM-IWF fails to enqueue a Diameter message to DRL's Request or Answer Task
Measurement Scope	Site

Recovery

If the problem occurs frequently, it is recommended to contact *My Oracle Support (MOS)*.

EvDmiwfMsgSizeExceeded

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Message Type - Request/Answer)
Description	Number of Diameter messages received from DRL that got rejected because the Diameter message size exceeded maximum "Diameter Max Message Size"

Collection Interval	5 min
Peg Condition	Each time DM-IWF fails to forward a Diameter message to SS7-MP because its size exceeds the supported maximum
Measurement Scope	Site

Recovery

Occurrence of this event indicates that diameter message received has size that exceeds maximum diameter message size supported by MAP-Diameter Interworking function and therefore be handled as "Internal Processing Error". Source of these requests can be tracked using "Origin Host", "Application Id" and "Command Code".

RxDmiwfTransactionsRejected

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of interworking attempts that failed due to action initiated by DM-IWF (not due to far end).
Collection Interval	5 min
Peg Condition	This measurement is pegged each time an interworking attempt by DM-IWF fails due to an action initiated by DM-IWF as send answer or discard request. This measurement does not include failures that are due to an error response received from the far end.
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

DmIwfOcDrop

Measurement Group	DM-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	DM-IWF originated messages discarded or rejected by overload control.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time a Diameter message received from SS7MP is dropped because DA-MP is in Overload.
Measurement Scope	Site

Recovery

No action required.

DM-IWF Performance measurements

The Diameter Interworking Function Performance measurement report contains measurements providing performance information that is specific to the MAP-Diameter IWF Application running on a DA-MP.

Measurement Tag	Description	Collection Interval
RxDmiwfDtoMTransCnt	Number of Diameter-to-MAP transaction messages processed.	5 min
RxDmiwfDtoMTransRateAvg	Average number of Diameter-to-MAP transaction messages processed per second.	5 min
RxDmiwfDtoMTransRatePeak	Peak number of Diameter-to-MAP transaction messages processed per second.	5 min
RxDmiwfMtoDTransCnt	Number of MAP-to-Diameter transaction messages processed.	5 min
RxDmiwfMtoDTransRateAvg	Average number of MAP-to-Diameter transaction messages processed per second.	5 min
RxDmiwfMtoDTransRatePeak	Peak number of MAP-to-Diameter transaction messages processed per second.	5 min
RxDmiwfTransactionRspQueuePeak	Transaction Response Queue Peak Utilization	5 min
RxDmiwfTransactionRspQueueAvg	Transaction Response Queue Average Utilization	5 min
EvDmiwfPtrPoolPeak	DM-IWF PTR Buffer Pool Peak Utilization	5 min
EvDmiwfPtrPoolAvg	DM-IWF PTR Buffer Pool Average Utilization	5 min
RxDmiwfRequestMessage	Number of Request messages with Command Code "X" received from DRL.	5 min
RxDmiwfAnswerMessage	Number of Answer messages with Command Code "X" received from DRL.	5 min
TxDmiwfRequestMessage	Number of Request messages with Command Code "X" successfully sent to DRL.	5 min
TxDmiwfAnswerMessage	Number of Answer messages with Command Code "X" successfully sent to DRL.	5 min
RxDmiwfRequestMessageIwf	Number of Request messages processed by DM-IWF that were received from an SS7-MP	5 min

Measurement Tag	Description	Collection Interval
RxDmiwfAnswerMessageIwf	Number of Answer messages processed by DM-IWF that were received from an SS7-MP	5 min
TxDmiwfRequestMessageIwf	Number of Request messages sent to an SS7-MP	5 min
TxDmiwfAnswerMessageIwf	Number of Answer messages to an SS7-MP	5 min

RxDmiwfDtoMTransCnt

Measurement Group DM-IWF Performance

Measurement Type Simple

Measurement Dimension Single

Description Number of Diameter-to-MAP transaction messages processed.

Collection Interval 5 min

Peg Condition

- When DM-IWF processes a Request message received from DRL.
- When DM-IWF processes an Answer message received from an MD-IWF.

Note: Two messages are processed for each Diameter-to-MAP transaction: the Request received from DRL (e.g., CLR) and the Answer response received from a SS7-MP and returned to the Diameter network (e.g., CLA).

Note: This measurement serves as baseline for calculating measurements *RxDmiwfDtoMTransRateAvg* and *RxDmiwfDtoMTransRatePeak*, as well as KPI Diameter-to-MAP Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details on this KPI).

Measurement Scope Site

Recovery

No action required.

RxDmiwfDtoMTransRateAvg

Measurement Group DM-IWF Performance

Measurement Type Avg

Measurement Dimension Single

Description Average number of Diameter-to-MAP transaction messages processed per second.

Note: Two messages are processed for each Diameter-to-MAP transaction: the Request received from DRL (e.g., CLR) and the

	Answer response received from a SS7-MP and returned to the Diameter network (e.g., CLA).
Collection Interval	5 min
Peg Condition	Each time measurement *RxDmiwfDtoMTransCnt* is sampled.
Measurement Scope	Site

Recovery

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to this DSR Application. Verify the configuration from **Main Menu** > **Diameter** > **Configuration** > **Application Routing Rules**
2. Determine if there are an insufficient number of DA-MPs configured to handle the network load. Monitor the ingress traffic rate of each MP from **Main Menu** > **Status & Manage** > **KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxDmiwfDtoMTransRatePeak

Measurement Group	DM-IWF Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Peak number of Diameter-to-MAP transaction messages processed per second. **Note:** Two messages are processed for each Diameter-to-MAP transaction: the Request received from DRL (e.g., CLR) and the Answer response received from a SS7-MP and returned to the Diameter network (e.g. CLA).
Collection Interval	5 min
Peg Condition	Each time measurement *RxDmiwfDtoMTransCnt* is sampled.
Measurement Scope	Site

Recovery

No action required.

RxDmiwfMtoDTransCnt

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of MAP-to-Diameter transaction messages processed.
Collection Interval	5 min

Peg Condition

- When DM-IWF processes a Request message received from an MD-IWF.
- When DM-IWF processes an Answer message received from DRL.

Note: Two messages are processed for each MAP-to-Diameter transaction: the Request received from a SS7-MP (e.g., CLR) and the Answer response received from DRL and returned to the SS7-MP (e.g., CLA).

Measurement Scope Site

Recovery

No action required.

RxDmiwfMtoDTransRateAvg

Measurement Group DM-IWF Performance

Measurement Type Avg

Measurement Dimension Single

Description Average number of MAP-to-Diameter transaction messages processed per second.

Note: Two messages are processed for each MAP-to-Diameter transaction: the Request received from a SS7-MP (e.g., CLR) and the Answer response received from DRL and returned to the SS7-MP (e.g., CLA).

Collection Interval 5 min

Peg Condition Each time measurement *RxDmiwfMtoDTransCnt* is sampled.

Measurement Scope Site

Recovery

No action required.

RxDmiwfMtoDTransRatePeak

Measurement Group DM-IWF Performance

Measurement Type Max

Measurement Dimension Single

Description Peak number of MAP-to-Diameter transaction messages processed per second.

Note: Two messages are processed for each MAP-to-Diameter transaction: the Request received from a SS7-MP (e.g., CLR) and the Answer response received from DRL and returned to the SS7-MP (e.g., CLA).

Collection Interval	5 min
Peg Condition	Each time measurement *RxDmiwfMtoDTransCnt* is sampled.
Measurement Scope	Site

Recovery

No action required.

RxDmiwfTransactionRspQueuePeak

Measurement Group	DM-IWF Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Transaction Response Queue utilization (0-100%) measured during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.
Collection Interval	5 min
Peg Condition	The maximum Transaction Response Queue utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RxDmiwfTransactionRspQueueAvg

Measurement Group	DM-IWF Performance
Measurement Type	Avg
Measurement Dimension	Single
Description	The average Transaction Response Queue utilization (0-100%) measured during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.
Collection Interval	5 min
Peg Condition	The average of all Transaction Response Queue utilization samples taken during the collection interval.
Measurement Scope	

Recovery

No action required.

EvDmiwfPtrPoolPeak

Measurement Group	DM-IWF Performance

Measurement Type	Max
Measurement Dimension	Single
Description	The peak DM-IWF PTR Pool utilization (0-100%) measured during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.
Collection Interval	5 min
Peg Condition	The maximum DM-IWF PTR Pool utilization sample taken during the collection interval
Measurement Scope	Site

Recovery

No action required.

EvDmiwfPtrPoolAvg

Measurement Group	DM-IWF Performance
Measurement Type	Avg
Measurement Dimension	Single
Description	The DM-IWF PTR Buffer Pool Average Utilization
Collection Interval	5 min
Peg Condition	The average DM-IWF PTR Pool utilization sample taken during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.
Measurement Scope	Site

Recovery

No action required.

RxDmiwfRequestMessage

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Command Code)
Description	Number of Request messages with Command Code "X" received from DRL.
Collection Interval	5 min
Peg Condition	Each time DM-IWF processes a Request message received from DRL.
Measurement Scope	Site

Recovery

No action required.

RxDmiwfAnswerMessage

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Command Code)
Description	Number of Answer messages with Command Code "X" received from DRL.
Collection Interval	5 min
Peg Condition	Each time DM-IWF processes an Answer message received from DRL.
Measurement Scope	Site

Recovery

No action required.

TxDmiwfRequestMessage

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Command Code ID)
Description	Number of Request messages with Command Code "X" received from DRL.
Collection Interval	5 min
Peg Condition	Each time DM-IWF successfully enqueues a Request message to DRL's Request Queue, which includes Request messages forwarded from MD-IWFs and Request messages forwarded back to DRL for "Unavailability Action" handling.
Measurement Scope	Site

Recovery

No action required.

TxDmiwfAnswerMessage

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Command Code)
Description	Number of Answer messages with Command Code "X" sent to from DRL.

Collection Interval	5 min
Peg Condition	Each time DM-IWF successfully enqueues an Answer message to DRL's Answer Queue.
Measurement Scope	Site

Recovery

No action required.

RxDmiwfRequestMessageIwf

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages processed from am SS7-MP.
Collection Interval	5 min
Peg Condition	Each time DM-IWF processes a request message received from an MD-IWF (SS7-MP).
Measurement Scope	Site

Recovery

No action required.

RxDmiwfAnswerMessageIwf

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Answer messages processed by DM-IWF that were received from an SS7-MP.
Collection Interval	5 min
Peg Condition	Each time DM-IWF processes an Answer message received from an MD-IWF (SS7-MP).
Measurement Scope	Site

Recovery

No action required.

TxDmiwfRequestMessageIwf

Measurement Group	DM-IWF Performance

Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages sent to an SS7-MP.
Collection Interval	5 min
Peg Condition	Each time DM-IWF sends a Request message to an MD-IWF (SS7-MP).
Measurement Scope	

Recovery

No action required.

TxDmiwfAnswerMessageIwf

Measurement Group	DM-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Answer messages sent to an SS7-MP.
Collection Interval	5 min
Peg Condition	Each time DM-IWF sends a Request message to an MD-IWF (SS7-MP).
Measurement Scope	

Recovery

No action required.

Egress Throttle Group Performance measurements

The Diameter Egress Throttle Group Performance measurement report contains measurements providing information related to a specific ETG.

Table 42: Diameter Egress Throttle Group Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxEtgMsgsLocal	Number of Messages send to members of ETG. This measurements is not aggregate measurement across all MPs but specific for this MP.	5 min
TxEtgMsgRatePeak	Peak Aggregated ETG Request Message Rate calculation made during the collection interval	5 min

Measurement Tag	Description	Collection Interval
TxEtgMsgRateAvg	Average ETG Request Message Rate calculation made during the collection interval	5 min
EvEtgRateCongestionOnset	Number of times an ETG Message Rate Congestion Level was advanced	5 min
EvEtgRateDiscardPri0	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited	5 min
EvEtgRateDiscardPri1	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited	5 min
EvEtgRateDiscardPri2	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited	5 min
EvEtgPendingTransPeak	Peak pending transactions to members of this ETG during the collection interval	5 min
EvEtgPendingTransAvg	Average Pending transactions to this ETG during the collection interval	5 min
EvEtgPendingTransOnset	Number of times an ETG Pending Transaction Limiting Congestion Level was advanced	5 min
EvEtgPendingTransDiscardPri0	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited	5 min
EvEtgPendingTransDiscardPri1	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited	5 min
EvEtgPendingTransDiscardPri2	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited	5 min

TxEtgMsgsLocal

Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of messages (Request or Answer) send on a Connection or a Peer which is part of ETG .

Collection Interval	5 min
Peg Condition	When DRL successfully queues a message (Request (including Reroutes and MessageCopy) or Answer) to DCL for transmission to Connection or a Peer which is part of ETG. This peg is incremented even if ETG Rate Limiting function is Disabled. This peg is incremented only for "Routable" messages i.e messages terminated in DCL layer (eg CEX, DWX) are not counted.
Measurement Scope	Site

Recovery

No action required

TxEtgMsgRatePeak

Measurement Group	Egress Throttle Group Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by ETG ID)
Description	Peak Aggregated ETG Message Rate calculation made during the collection interval
Collection Interval	5 min
Peg Condition	An ETG Message Rate calculation A_t is periodically calculated. If the new A_t exceeds any previous A_{t-k} value for the collection interval, then this measurement will be updated with the new A_t value.
Measurement Scope	Site

Recovery

No action required

TxEtgMsgRateAvg

Measurement Group	Egress Throttle Group Performance
Measurement Type	Avg
Measurement Dimension	Arrayed (by ETG ID)
Description	Average ETG Message Rate calculation made during the collection interval
Collection Interval	5 min
Peg Condition	Each time an ETG Message Rate calculation A_t is calculated.
Measurement Scope	Site

Recovery

No action required

EvEtgRateCongestionOnset

Measurement ID	14003
Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of times an ETG-RCL was advanced.
Collection Interval	5 min
Peg Condition	Each time the EMR Congestion Level is advanced
Measurement Scope	Site

Recovery

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtgRateDiscardPri0

Measurement ID	14004
Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.
Collection Interval	5 min

Peg Condition	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETG Rate Limited
Measurement Scope	Site

Recovery

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, t is recommended to contact *My Oracle Support (MOS)*.

EvEtgRateDiscardPri1

Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETG Rate Limited
Measurement Scope	Site

Recovery

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.

5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtgRateDiscardPri2

Measurement ID	14006
Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETG Rate Limited
Measurement Scope	Site

Recovery

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtgPendingTransPeak

Measurement Group	Egress Throttle Group Performance
Measurement Type	Max

Measurement Dimension	Arrayed (by ETG ID)
Description	Peak pending transactions to members of this ETG during the collection interval.
Collection Interval	5 min
Peg Condition	Each time a new P_t value exceeds any previous P_{t-k} value.
Measurement Scope	Site

Recovery

No action required

EvEtgPendingTransAvg

Measurement Group	Egress Throttle Group Performance
Measurement Type	Avg
Measurement Dimension	Arrayed (by ETG ID)
Description	Average pending transactions to members of this ETG during the collection interval.
Collection Interval	5 min
Peg Condition	Each time an ETG Pending Request P_t value is calculated.
Measurement Scope	Site

Recovery

No action required

EvEtgPendingTransCongestionOnset

Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of times an ETG-PCL was advanced.
Collection Interval	5 min
Peg Condition	Each time the ETG Window Congestion Level is advanced
Measurement Scope	Site

Recovery

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.

3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtgPendingTransDiscardPri0

Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETG Pending Transaction Limited
Measurement Scope	Site

Recovery

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtgPendingTransDiscardPri1

Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETG Pending Transaction Limited
Measurement Scope	Site

Recovery

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtgPendingTransDiscardPri2

Measurement Group	Egress Throttle Group Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETG ID)
Description	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETG Pending Transaction Limited

Measurement Scope Site

Recovery

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

Egress Throttle List Performance measurements

The Diameter Egress Throttle List Performance measurement report contains measurements providing information related to a specific ETL.

Table 43: Diameter Egress Throttle List Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxEtlMsgRatePeak	Peak Aggregated ETL Request Message Rate calculation made during the collection interval.	5 min
TxEtlMsgRateAvg	Average ETLRequest Message Rate calculation made during the collection interval.	5 min
EvEtlRateCongestionOnset	Number of times an ETL-RCLwas advanced.	5 min
EvEtlRateDiscardPri0	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.	5 min
EvEtlRateDiscardPri1	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.	5 min
EvEtlRateDiscardPri2	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.	5 min
EvEtlPendingTransPeak	Peak pending transactions to members of this ETL during the collection interval.	5 min

Measurement Tag	Description	Collection Interval
EvEtlPendingTransAvg	Average Pending transactions to this ETL during the collection interval.	5 min
EvEtlPendingTrans CongestionOnset	Number of times an ETL-PCLwas advanced.	5 min
EvEtlPendingTrans DiscardPri0	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited.	5 min
EvEtlPendingTrans DiscardPri1	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited.	5 min
EvEtlPendingTrans DiscardPri2	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited.	5 min

TxEtlMsgRatePeak

Measurement Group Egress Throttle List Performance

Measurement Type Max

Measurement Dimension Arrayed (by ETL ID)

Description Peak Aggregated ETL Request Message Rate calculation made during the collection interval

Collection Interval 5 min

Peg Condition An ETL Message Rate calculation A_t is periodically calculated. If the new A_t exceeds any previous A_{t-k} value for the collection interval, then this measurement will be updated with the new A_t value. This measurement is pegged regardless of whether the ETL's ETG is scoped to ETL or ETG level.

Measurement Scope Site

Recovery

No action required

TxEtlMsgRateAvg

Measurement Group Egress Throttle List Performance

Measurement Type Avg

Measurement Dimension Arrayed (by ETL ID)

Description Average ETL Request Message Rate calculation made during the collection interval

Collection Interval	5 min
Peg Condition	Each time an ETL Message Rate calculation A_t is calculated.
Measurement Scope	Network

Recovery

No action required

EvEtlRateCongestionOnset

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETL ID)
Description	Number of times an ETL-RCL was advanced.
Collection Interval	5 min
Peg Condition	Each time the EMR Congestion Level is advanced
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtlRateDiscardPri0

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETL ID)

Description	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETL Rate Limited
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtlRateDiscardPri1

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETL ID)
Description	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETL Rate Limited
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.

3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtlRateDiscardPri2

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETL ID)
Description	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETL Rate Limited
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtlPendingTransPeak

Measurement Group	Egress Throttle List Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by ETL ID)
Description	Peak pending transactions to members of this ETL during the collection interval.
Collection Interval	5 min
Peg Condition	An ETL Pending Request calculation P_t is periodically calculated. If the new P_t value exceeds any previous P_{t-k} value for the collection interval, then this measurement will be updated with the new P_t value. This measurement is pegged regardless of whether the ETL's ETG is scoped to ETL or ETG level.
Measurement Scope	Network

Recovery

No action required

EvEtlPendingTransAvg

Measurement Group	Egress Throttle List Performance
Measurement Type	Avg
Measurement Dimension	Arrayed (by ETL ID)
Description	Average pending transactions to members of this ETL during the collection interval.
Collection Interval	5 min
Peg Condition	An ETL Pending Request calculation Pt is periodically calculated. Each time P_t is calculated the Average Pending Requests measurement shall be updated. This measurement is pegged regardless of whether the ETL's ETG is scoped to ETL or ETG level.
Measurement Scope	Network

Recovery

No action required

EvEtlPendingTransCongestionOnset

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETL ID)

Description	Number of times an ETL-PCL was advanced.
Collection Interval	5 min
Peg Condition	Each time the ETL Window Congestion Level is advanced
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtlPendingTransDiscardPri0

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETL ID)
Description	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETL Pending Transaction Limited
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.

4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtlPendingTransDiscardPri1

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by ETL ID)
Description	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETL Pending Transaction Limited
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvEtlPendingTransDiscardPri2

Measurement Group	Egress Throttle List Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by ETL ID)
Description	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited
Collection Interval	5 min
Peg Condition	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETL Pending Transaction Limited
Measurement Scope	Network

Recovery

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

Full Address Based Resolution (FABR) Application Exception measurements

The "FABR Application Exception" measurement group is a set of measurements that provide information about exceptions and unexpected messages and events that are specific to the FABR feature.

Table 44: FABR Application Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxFabrBlacklistedImsi	Number of request messages received containing IMSI of a Blacklisted subscriber.	5 min
RxFabrBlacklistedMsisdn	Number of request messages received containing MSISDN of Blacklisted subscriber.	5 min
RxFabrDecodeFailureResol	Number of Request messages rejected due to a message decoding error.	5 min

Measurement Tag	Description	Collection Interval
RxFabrInvalidImsiMcc	Number of times an AVP instance present in a Diameter request message is rejected due to the MCC contained in the decoded IMSI falling within one of the configured Reserved MCC Ranges.	5 min
RxFabrNgnPsDrop	The number of FABR ingress NGN-PS messages discarded or rejected.	5 min
RxFabrResolFailAll	Total number of Request messages received which did not resolve a Destination address.	5 min
RxFabrResolFailCmdcode	Number of Request messages received with an unknown Command Code.	5 min
RxFabrResolFailImpiMatch	Number of Request messages received for which IMPI was used for Destination address resolution, but no Destination address was found.	5 min
RxFabrResolFailImpuMatch	Number of Request messages received for which IMPU was used for Destination address resolution, but no Destination address was found.	5 min
RxFabrResolFailImsiMatch	Number of Request messages received for which IMSI was used for Destination address resolution, but no Destination address was found.	5 min
RxFabrResolFailMsisdnMatch	Number of Request messages received for which MSISDN was used for Destination address resolution, but no Destination address was found.	5 min
RxFabrResolFailNoAddrAvps	Number of Request messages received without a Routing Entity Address AVP.	5 min
RxFabrResolFailNoValidAddr	Number of Request messages received with at least Routing Entity Address AVP but no valid Routing Entity Addresses were found.	5 min
RxFabrUnkApplId	Number of Request messages rejected due to an unknown Application ID.	5 min
TxFabrDbConFail	Number of database queries failed due to the Communication Agent queue exhaustion.	5 min
TxFabrFwdFail	Number of routing attempt failures due to internal resource exhaustion.	5 min

RxFabrBlacklistedImsi

Measurement Group Full Address Resolution Exception

Measurement Type Simple

Measurement Dimension Arrayed (by Diameter Application ID)

Description	The number of request messages received containing IMSI of a Blacklisted subscriber
Collection Interval	5 min
Peg Condition	Each time the Routing Exception "BlackListed Subscriber" is invoked
Measurement Scope	Server Group

Recovery

No action required.

RxFabrBlacklistedMsisdn

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	The number of request messages received containing MSISDN of Blacklisted subscriber
Collection Interval	5 min
Peg Condition	Each time the Routing Exception "BlackListed Subscriber" is invoked
Measurement Scope	Server Group

Recovery

1. Validate which User identity address is not blacklisted by using DP configuration.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxFabrDecodeFailureResol

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages rejected due to a message decoding error.
Collection Interval	5 min
Peg Condition	For each routing exception when the Application ID is not valid or the AVP extends beyond the length of the message indicated by the Message Length parameter in the message header.
Measurement Scope	Server Group

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrInvalidImsiMcc

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times an AVP instance present in a Diameter request message is rejected due to the MCC contained in the decoded IMSI falling within one of the configured Reserved MCC Ranges.
Collection Interval	5 min
Peg Condition	Each time a Diameter request message is rejected due to the MCC contained in the decoded IMSI falling within one of the configured Reserved MCC Ranges.
Measurement Scope	Server Group

Recovery

1. Validate the ranges configured in the Reserved MCC Ranges table.
2. Verify that the MCC portion of the decodable IMSI received by RBAR does not fall within the configured Reserved MCC Ranges.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxFabrNgnPsDrop

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of FABR ingress NGN-PS messages discarded or rejected.
Collection Interval	5 min

Peg Condition	Each time NGN-PS Diameter message is dropped due these conditions:
	• In scenarios where the configured action is 'Discard'
	  • where address resolution is unsuccessful
	  • Event sending to ComAgent is unsuccessful
	  • Delivery failure notification from
	• Event sending failure to DRL.

Measurement Scope	Server Group

Recovery

1. When non-zero, examine other failure measurements (*RxFabrUnkApplId*, *RxFabrDecodeFailureResol*, *RxFabrResolFailAll*, *RxFabrResolFailCmdcode*, *RxFabrResolFailNoAddrAvps*, *TxFabrDbConFail*,

TxFabrAbandonRequest, *RxFabrInvalidImsiMcc*, *RxFabrBlacklistedImsi*, *RxFabrBlacklistedMsisdn*) to isolate reasons for failures.

2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailAll

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Total number of Request messages received which did not resolve a Destination address.
Collection Interval	5 min
Peg Condition	For each Request message which did not resolve to a Destination address.
Measurement Scope	Server Group

Recovery

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailCmdcode

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with an unknown Command Code.
Collection Interval	5 min
Peg Condition	For each routing exception where the (Application ID, Command Code) pair in the incoming Request message is not configured.
Measurement Scope	Server Group

Recovery

The currently provisioned Diameter Application IDs can be viewed in the FABR Configuration & Maintenance GUI.

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailDpCongested

Measurement ID	10669

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Database queries that failed to be serviced due DP/ComAgent errors.
Collection Interval	5 min
Peg Condition	When FABR application received service notification indicating Database (DP) or DB connection (ComAgent) Errors (DP timeout, errors, or ComAgent internal errors) for the sent database query.
Measurement Scope	Server Group

Recovery

No action required

RxFabrResolFailImpiMatch

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received for which IMPI was used for Destination address resolution, but no Destination address was found.
Collection Interval	5 min
Peg Condition	For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMPI.
Measurement Scope	Server Group

Recovery

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailImpuMatch

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received for which IMPU was used for Destination address resolution, but no Destination address was found.
Collection Interval	5 min

Peg Condition	For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMPU.
Measurement Scope	Server Group

Recovery

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailImsiMatch

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received for which IMSI was used for Destination address resolution, but no Destination address was found.
Collection Interval	5 min
Peg Condition	For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMSI.
Measurement Scope	Server Group

Recovery

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. Contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailMsisdnMatch

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received for which MSISDN was used for Destination address resolution, but no Destination address was found.
Collection Interval	5 min
Peg Condition	For each message which did not successfully resolve to a Destination using a Routing Entity Type of MSISDN.
Measurement Scope	Server Group

Recovery

Validate which destination address is associated with the user identity address by using DP GUI.

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailNoAddrAvps

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received without a Routing Entity Address AVP.
Collection Interval	5 min
Peg Condition	For each routing exception with no valid User Identity address found and the number of AVPs searched for the message was 0.
Measurement Scope	Server Group

Recovery

If this event is considered abnormal, then use validate which AVPs are configured for routing with the Application ID and Command Code using the FABR GUI screen.

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrResolFailNoValidAddr

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received with at least Routing Entity Address AVP but no valid Routing Entity Addresses were found.
Collection Interval	5 min
Peg Condition	For each routing exception with no valid User Identity address found and the number of AVPs searched for the message was greater than 0.
Measurement Scope	Server Group

Recovery

1. If this event is considered abnormal, then use validate which AVPs are configured for routing with the Application ID and Command Code using the FABR GUI screen.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrSrvNotiDpComAgentErrors

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple

Measurement Dimension	Arrayed (per Diameter Application)
Description	Number of failed Database queries received in the service notifications from Com Agent indicating DP/COM Agent errors.
Collection Interval	5 min
Peg Condition	When FABR receives a service notification from Communication Agent indicating a DP/Communication Agent error.
Measurement Scope	MP

Recovery

No action necessary.

RxFabrTransactionsRejected

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of transactions rejected by FABR.
Collection Interval	5 min
Peg Condition	Each time the RBAR application sends an answer response with Result-Code/Experimental-Code or abandons an ingress request message.
Measurement Scope	Server Group

Recovery

1. When non-zero, examine other failure measurements (*RxFabrUnkApplId*, *RxFabrDecodeFailureResol*, *RxFabrResolFailAll*, *RxFabrResolFailCmdcode*, *RxFabrResolFailNoAddrAvps*, *TxFabrDbConFail*, *TxFabrAbandonRequest*, *RxFabrInvalidImsiMcc*, *RxFabrBlacklistedImsi*, *RxFabrBlacklistedMsisdn*) to isolate reasons for failures.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxFabrUnkApplId

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages rejected due to an unknown Application ID.
Collection Interval	5 min
Peg Condition	For each routing exception when the Application ID is not valid.

Measurement Scope	Server Group

Recovery

1. The currently provisioned Diameter Application IDs can be viewed in the FABR Configuration & Maintenance GUI.
2. The currently provisioned Application Routing Rules can be viewed using **Main Menu** > **Diameter** > **Configuration** > **Application Routing Rules.**
3. It is recommended to contact *My Oracle Support (MOS)* for assistance.

TxFabrDbConFail

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of database queries failed due to the Communication Agent queue exhaustion.
Collection Interval	5 min
Peg Condition	Each time the application attempts to send DP queries and fails due to Communication Agent queue exhaustion.
Measurement Scope	Server Group

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

TxFabrFwdFail

Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of routing attempt failures due to internal resource exhaustion.
Collection Interval	5 min
Peg Condition	Each time the application attempts to enqueue a Request message on the DSR Relay Agent's "Request Message Queue" or enqueue a Answer message on "DRL Answer Queue" and it fails (e.g., queue full).
Measurement Scope	Server Group

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

Full Address Based Resolution (FABR) Application Performance measurements

The "FABR Application Performance" measurement group is a set of measurements that provide performance information that is specific to the FABR feature. These measurements will allow you to determine how many messages are successfully forwarded and received to and from the FABR Application.

Table 45: DSR Application Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
FabrAverageQueriesPerBundle	Average number of queries per Bundle sent by FABR.	5 min
RxDpResponseTimeAvg	Average time (in milliseconds) it takes to receive a DP response after sending the correlated database query.	5 min
RxFabrAvgMsgSize	Average size of Request message received.	5 min
RxFabrBundledResponseEvents	The number of Bundled Response Events received by FABR.	5 min
RxFabrDpResponse MsgQueueAvg	The average DP Response Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxFabrDpResponse MsgQueuePeak	The peak DSR Application's DP Response Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxFabrNgnPs	The number of FABR ingress NGN-PS messages.	5 min
RxFabrMsgs	Number of Request messages received by FABR application.	5 min
RxFabrResolAll	Number of Addresses Successfully Resolved to a Destination.	5 min
RxFabrResolAllMp	Number of Addresses Successfully Resolved to a Destination by the MP.	5 min
RxFabrResolImpi	Number of Addresses Successful Resolved with Routing Entity type IMPI.	5 min
RxFabrResolImpu	Number of Addresses Successful Resolved with Routing Entity type IMPU.	5 min
RxFabrResolImsi	Number of Addresses Successful Resolved with Routing Entity type IMSI.	5 min

Measurement Tag	Description	Collection Interval
RxFabrResolMsisdn	Number of Addresses Successful Resolved with Routing Entity type MSISDN.	5 min
RxFabrResolRateAvg	Average Addresses Successfully Resolved per second.	5 min
RxFabrResolRatePeak	Peak Addresses Successfully Resolved per second.	5 min
TxFabrAbandonRequest	Number of Request message that are abandoned.	5 min
TxFabrBundledQueryEvents	Number of Bundled Query Events sent to ComAgent.	5 mi
TxFabrFwdDefaultDest	Number of Request message forwarding attempts using a Default Destination.	5 min
TxFabrFwdNochange	Number of Request message forwarding attempts without changing the message.	5 min
TxFabrFwdSuccess	Number of Request messages successfully forwarded (all reasons).	5 min
TxFabrMsgAttempt	Number of Request message forwarding attempts (all reasons).	5 min

FabrAverageQueriesPerBundle

Measurement Group Full Address Resolution Performance

Measurement Type Average

Measurement Dimension Single

Description Average number of queries per Bundle sent by FABR.

Collection Interval 5 min

Peg Condition When FABR successfully sends a Bundled query event to ComAgent for processing

Measurement Scope Server Group

Recovery

No action required.

RxDpResponseTimeAvg

Measurement Group Full Address Resolution Performance

Measurement Type Average

Measurement Dimension Single

Description	Average time (in milliseconds) it takes to receive a DP response after sending the correlated database query.
Collection Interval	5 min
Peg Condition	It is calculated based on the total number of sampled database queries during the collection interval.
Measurement Scope	MP

Recovery

No action necessary.

RxFabrAvgMsgSize

Measurement Group	Full Address Resolution Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Average size of Request message received.
Collection Interval	5 min
Peg Condition	Average calculated for each Request message received.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrBundledResponseEvents

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Bundled Response Events received by FABR.
Collection Interval	5 min
Peg Condition	When FABR successfully receives a Bundled response event from ComAgent.
Measurement Scope	Server Group

Recovery

No action required.

RxFabrDpResponseMsgQueueAvg

Measurement Group	Full Address Resolution Performance

Measurement Type	Simple
Measurement Dimension	Single
Description	The average DP Response Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

This alarm may occur due to persistent overload conditions with respect to database response processing.

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrDpResponseMsgQueuePeak

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The peak DSR Application's DP Response Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum DP Response Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

This alarm may occur due to persistent overload conditions with respect to database response processing.

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxFabrMsgs

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages received by FABR application.
Collection Interval	5 min

Peg Condition	For each message successfully de-queued from the application's internal "Message Event" queue.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrNgnPs

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of FABR ingress NGN-PS messages.
Collection Interval	5 min
Peg Condition	Each time NGN-PS Diameter message is received.
Measurement Scope	Server Group

Recovery

No action required.

RxFabrResolAll

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successfully Resolved to a Destination.
Collection Interval	5 min
Peg Condition	For each message successfully resolved to a Destination.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrResolAllMp

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Addresses Successfully Resolved to a Destination by the MP.

Collection Interval	5 min
Peg Condition	For each message successfully resolved to a Destination by the MP.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrResolImpi

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IMPI.
Collection Interval	5 min
Peg Condition	For each message successfully resolved to a Destination using a Routing Entity Type of IMPI.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrResolImpu

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IMPU.
Collection Interval	5 min
Peg Condition	For each message successfully resolved to a Destination using a Routing Entity Type of IMPU.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrResolImsi

Measurement Group	Full Address Resolution Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type IMSI.
Collection Interval	5 min
Peg Condition	For each message successfully resolved to a Destination using a Routing Entity Type of IMSI.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrResolMsisdn

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Addresses Successful Resolved with Routing Entity type MSISDN.
Collection Interval	5 min
Peg Condition	For each message successfully resolved to a Destination using a Routing Entity Type of MSISDN.
Measurement Scope	Server Group

Recovery

No action necessary.

RxFabrResolRateAvg

Measurement Group	Full Address Resolution Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average Addresses Successfully Resolved per second.
Collection Interval	5 min
Peg Condition	The “average per second” is periodically calculated based on the total number of addresses successfully resolved.
Measurement Scope	Server Group

Recovery

No action required.

RxFabrResolRatePeak

Measurement Group	Full Address Resolution Performance
Measurement Type	Max
Measurement Dimension	Single
Description	Peak Addresses Successfully Resolved per second.
Collection Interval	5 min
Peg Condition	At the end of each sample period associated with average successfully resolved message rate, as defined by measurement *RxFabrResolRateAvg*, if the value exceeds the current value for this measurement, then the measurement will be updated with the current sample periods value.
Measurement Scope	Server Group

Recovery

No action required.

RxFabrSrvNotiDpCongest

Measurement ID	10647
Measurement Group	Full Address Resolution Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Service Notifications received from ComAgent indicating DP is congested with CL=2 or CL=3.
Collection Interval	5 min
Peg Condition	When FABR receives Service Notification from ComAgent indicating a DP congestion at CL=2 or CL=3.
Measurement Scope	MP

Recovery

No action necessary.

TxFabrAbandonRequest

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request message that are abandoned.
Collection Interval	5 min

Peg Condition	Each time the Routing Exception "Abandon Request" is invoked.
Measurement Scope	Server Group

Recovery

No action necessary.

TxFabrBundledQueryEvents

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Bundled Query Events sent to ComAgent.
Collection Interval	5 min
Peg Condition	When FABR successfully sends a Bundled query event to ComAgent for processing.
Measurement Scope	Server Group

Recovery

No action required.

TxFabrFwdDefaultDest

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request message forwarding attempts using a Default Destination.
Collection Interval	5 min
Peg Condition	Each time the Routing Exception "Forward route the message with a user-configurable Default Destination" is invoked.
Measurement Scope	Server Group

Recovery

No action necessary.

TxFabrFwdNochange

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request message forwarding attempts without changing the message.
Collection Interval	5 min
Peg Condition	Each time the Routing Exception "Forward route the message unchanged" is invoked.
Measurement Scope	Server Group

Recovery

No action necessary.

TxFabrFwdSuccess

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request messages successfully forwarded (all reasons).
Collection Interval	5 min
Peg Condition	Each time the application successfully enqueues a Request message on the DSR Relay Agent's Request Message Queue.
Measurement Scope	Server Group

Recovery

If this value is less than *TxFabrMsgAttempt*, then an internal resource error is occurring. It is recommended to contact *My Oracle Support (MOS)* for assistance.

TxFabrMsgAttempt

Measurement Group	Full Address Resolution Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Application ID)
Description	Number of Request message forwarding attempts (all reasons).
Collection Interval	5 min
Peg Condition	Each time the application attempts to enqueue a Request message on the DSR Relay Agent's "Request Message Queue".
Measurement Scope	Server Group

Recovery

No action necessary.

GLA Exception measurements

The GLA Exception measurement group contains measurements that provide performance information that is specific to the GLA application.

Table 46: GLA Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxGlaDecodeFailures	Number of GLA Requests that could not be processed due to incorrect data in the Diameter message	5 min
RxGlaDatabaseFailures	Number of GLA Requests that could not be processed due to pSBR-B query failure	5 min
RxGlaDatabaseTimeouts	Number of GLA Requests that could not be processed due to pSBR-B query timeout	5 min

RxGlaDecodeFailures

Measurement Group	GLA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of GGRs unsuccessfully processed due to unsupported Application ID, Command Code, Subscriber Info, or other decoding issue.
Collection Interval	5 min
Peg Condition	During GGR failure handling
Measurement Scope	Server Group

Recovery

1. While parsing the message, one of the following conditions occurred:
   - The message content was inconsistent with the "Message Length" in the message header.
   - The IMSI contained in the User-Name AVP was considered invalid due to length.
   - The MSISDN contained in the MSISDN AVP was considered invalid due to length.
2. These protocol errors can be caused by the originator of the message (identified by the Origin-Host AVP in the message) or the peer who forwarded the message to this node. Collect a trace containing the GGR, and determine which node is causing the invalid data.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxGlaDatabaseFailures

Measurement Group	GLA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of GGRs unsuccessfully processed due to queries to pSBR-B receiving a negative acknowledgment.
Collection Interval	5 min
Peg Condition	During pSBR-B query failures
Measurement Scope	Server Group

Recovery

1. Examine the current state of the pSBR-B via the **Communication Agent** > **Maintenance** > **HA Service Status** screen.
2. The status of the Reporting Server's BindingRd should be examined to verify that all SubResources are Available. This will provide information about Availability and Congestion of each SubResource.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxGlaDatabaseTimeouts

Measurement Group	GLA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of GGRs unsuccessfully processed due to queries to pSBR-B timing out before a response is received.
Collection Interval	5 min
Peg Condition	During pSBR-B query failures
Measurement Scope	Server Group

Recovery

1. Examine the current state of the pSBR-B via the **Communication Agent** > **Maintenance** > **HA Service Status** screen.
2. The status of the Reporting Server's BindingRd should be examined to verify that all SubResources are Available. This will provide information about Availability and Congestion of each SubResource.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

GLA Performance measurements

The GLA Performance measurement group contains measurements that provide performance information that is specific to the GLA application.

Table 47: GLA Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxGlaSuccessMsgs	Number of GLA requests that were successfully processed	5 min
RxGlaResponseMsgQueuePeak	Peak utilization of pSBR-B response queue	5 min
RxGlaResponseMsgQueueAvg	Average Utilization of pSBR-B response queue	5 min
TxGlaSuccessMsgRatePeak	Peak rate of GLA Requests that are successfully processed	5 min
TxGlaSuccessMsgRateAvg	Average rate of GLA Requests that are successfully processed	5 min
RxGlaFailureMsgs	Number of GLA requests that were not successfully process (for any reason)	5 min

TxGlaSuccessMsgs

Measurement Group	GLA Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of GGRs successfully processed
Collection Interval	5 min
Peg Condition	When a GGA is transmitted following a successful query of the pSBR database
Measurement Scope	Server Group

Recovery

This number can be compared against *RxGlaRequestProcessed* to get a ratio of total input Requests to successfully processed Requests.

RxGlaResponseMsgQueuePeak

Measurement Group	GLA Performance
Measurement Type	Simple

Measurement Dimension	Single
Description	Peak utilization of GLA's response queue that handles pSBR-B replies.
Collection Interval	5 min
Peg Condition	Reception of a response Stack Event from pSBR-B.
Measurement Scope	Server Group

Recovery

1. This number provides an indication of short-term work-rate of the response task. If this value crosses 75%, it indicates that processing rates are increasing and additional capacity may need to be added to the DSR.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxGlaResponseMsgQueueAvg

Measurement Group	GLA Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Average utilization of GLA's response queue that handles pSBR-B replies.
Collection Interval	5 min
Peg Condition	Reception of a response Stack Event from pSBR-B.
Measurement Scope	Server Group

Recovery

1. This number provides an indication of sustained work-rate of the response task. If this value crosses 50%, it indicates that processing rates are increasing and additional capacity may need to be added to the DSR.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxGlaSuccessMsgRatePeak

Measurement Group	GLA Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Peak rate of GGRs successfully processed
Collection Interval	5 min
Peg Condition	When a GGA is transmitted following a successful query of the pSBR database
Measurement Scope	Server Group

Recovery

1. This number provides an indication of peak success work-rate of GLA. If can be used to determine when GLA is processing more than a customer's work-rate.
2. If the problem persists, It is recommended to contact *My Oracle Support (MOS)*.

TxGlaSuccessMsgRateAvg

Measurement Group	GLA Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Average rate of GGRs successfully processed
Collection Interval	5 min
Peg Condition	When a GGA is transmitted following a successful query of the pSBR database
Measurement Scope	Server Group

Recovery

1. This number provides an indication of sustained success work-rate of GLA. If can be used to determine when GLA is processing more than a customer's work-rate.
2. If the problem persists, It is recommended to contact *My Oracle Support (MOS)*.

RxGlaFailureMsgs

Recovery

1. When non-zero, examine other failure measurements (*RxGlaDecodeFailures*, *RxGlaDatabaseFailures*, *RxGlaDatabaseTimeouts*) to isolate reasons for failures
2. Search the Event History for additional information to identify the specific failure.
3. If the problem persists, It is recommended to contact *My Oracle Support (MOS)*.

IDIH measurements

The IDIH measurement report contains measurements that provide performance information that is specific to the IDIH feature.

Measurement Tag	Description	Collection Interval
EvIdihNumTtrsSent	Number of TTRs sent to DIH	5 min
EvIdihNumTtrsDeliveryFailed	Number of TTRs that could not be sent to DIH due to ComAgent connection failure	5 min
TmIdihTraceSuspendedTime	Amount of time that trace limiting is active	5 min
TmIdihTraceThrottlingTime	Amount of time that trace throttling is in force	5 min

Measurement Tag	Description	Collection Interval
EvIdihThrottlingTtrsDiscarded	Number of TTRs discarded due to trace throttling	5 min
EvInvalidIdihTraceAvp	Number of messages that contained IDIH-Trace AVPs within invalid values.	5 min
EvNetworkTraceStarted	Number of times that a network trace has been started.	5 min

EvIdihNumTtrsSent

Measurement Group IDIH

Measurement Type Simple

Measurement Dimension Single

Description The number of TTRs that were sent from DSR to DIH.

Collection Interval 5 min

Peg Condition Each time a TTR is successfully transmitted from DSR to DIH.

Measurement Scope Site

Recovery

No action required

EvIdihNumTtrsDeliveryFailed

Measurement Group IDIH

Measurement Type Simple

Measurement Dimension Single

Description The number of TTRs that could not be sent from DSR to DIH due to the failure of the ComAgent link.

Collection Interval 5 min

Peg Condition Each time a TTR cannot be successfully transmitted from DSR to DIH.

Measurement Scope Site

Recovery

Re-establish the ComAgent link to DIH.

TmIdihTraceSuspendedTime

Measurement Group	IDIH
Measurement Type	Duration
Measurement Dimension	Single
Description	The amount of time that trace limiting is active
Collection Interval	5 min
Peg Condition	Each time trace limiting is activated and stopped when trace limiting is de-activated.
Measurement Scope	Site

Recovery

No action required

TmIdihTraceThrottlingTime

Measurement Group	IDIH
Measurement Type	Duration
Measurement Dimension	Single
Description	The amount of time that trace throttling is active.
Collection Interval	5 min
Peg Condition	Each time trace throttling is activated and stopped when trace throttling is de-activated.
Measurement Scope	Site

Recovery

No action required

EvIdihThrottlingTtrsDiscarded

Measurement Group	IDIH
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of TTRs discarded due to trace throttling.
Collection Interval	5 min
Peg Condition	Each time a TTR is discarded due to trace throttling.
Measurement Scope	Site

Recovery

No action required

EvInvalidIdihTraceAvp

Measurement Group	IDIH
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages that contained IDIH-Trace AVPs within invalid values.
Collection Interval	5 min
Peg Condition	Every time that an IDIH-Trace AVP is received with a values that does not follow the defined format or names a trace that does not exist.
Measurement Scope	

Recovery

1. If this AVP was present in a message from an external peer, verify that the peer is not intentionally modifying this AVP. (Peers may either copy the IDIH-Trace AVP unchanged, or remove it entirely, but may not modify it).
2. If this AVP was present in a message from a DA-MP peer, it is recommended to contact *My Oracle Support (MOS)*.

EvNetworkTraceStarted

Measurement Group	IDIH
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times that a network trace has been started.
Collection Interval	5 min
Peg Condition	Every time that a network trace is started
Measurement Scope	

Recovery

No action required

IP Front End (IPFE) Exception measurements

The "IPFE Exception" measurement group is a set of measurements that provide information about exceptions and unexpected messages and events specific to the IPFE application. Measurements such as the following are included in this group.

Table 48: IPFE Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
PcapDroppedPackets	Number of ARP/ICMP/ICMPv6 control packets dropped	5 min
ThrottledPackets	Number of packets dropped due to throttling	5 min, 30 min, 60 min
TsaUnexpctedSctp	Number of SCTP packets sent to a TSA configured as “TCP Only”.	5 min
TsaUnexpctedTcp	Number of TCP packets sent to a TSA configured as “SCTP Only”.	5 min
TxReject	Number of new associations rejected	5 min
TxRejectSctp	Number of new SCTP associations rejected	5 min

PcapDroppedPackets

Measurement Group	IPFE Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	ARP/ICMP/ICMPv6 control packets dropped. The pcap library listens for packets on the network interfaces on behalf of the IPFE. If the network interface receives more packets than it can handle, the library will drop packets and increase a dropped packet counter.
Collection Interval	5 min
Peg Condition	This measurement is incremented by one each time the IPFE drops an ARP/ICMP/ICMPv6 control packet.
Measurement Scope	Network, NE, Server Group

Recovery

1. In the unlikely event that counts should appear for this measurement, network diagnostics should be performed.
2. For further assistance, It is recommended to contact *My Oracle Support (MOS)*.

ThrottledPackets

Measurement Group	IPFE Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of packets dropped due to throttling
Collection Interval	5 min, 30 min, 60 min
Peg Condition	When a packet is dropped to limit excessive IPFE CPU
Measurement Scope	Network

Recovery

Increase DSR Capacity.

TsaBadDestPortSctp

Measurement Group	IPFE Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	The number of packets received that had a destination port outside of the responder port range and the initiator port range.
Collection Interval	5 minutes
Peg Condition	Incremented when a packet that has an out-of-range destination port is received
Measurement Scope	Network, NE, Server Group

Recovery

OAM validation should prevent a DA-MP from using an out-of-range port as a source port. Check the configuration of the peer node.

TsaBadDestPortTcp

Measurement Group	IPFE Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	The number of packets received that had a destination port outside of the responder port range and the initiator port range.
Collection Interval	5 minutes

Peg Condition	Incremented when a packet that has an out-of-range destination port is received
Measurement Scope	Network, NE, Server Group

Recovery

OAM validation should prevent a DA-MP from using an out-of-range port as a source port. Check the configuration of the peer node.

TsaUnexpctedSctp

Measurement Group	IPFE Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	Number of SCTP packets sent to a TSA configured as "TCP Only".
Collection Interval	5 min
Peg Condition	Incremented when an SCTP packet is received for a TSA configured as "TCP Only".
Measurement Scope	Network, NE, Server Group

Recovery

Check client configuration for clients attempting SCTP associations with a TCP-only TSA.

TsaUnexpctedTcp

Measurement Group	IPFE Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	Number of TCP packets sent to a TSA configured as "SCTP Only".
Collection Interval	5 minutes
Peg Condition	Incremented when a TCP packet is received for a TSA configured as "SCTP Only".
Measurement Scope	Network, NE, Server Group

Recovery

Check client configuration for clients attempting TCP connections on an SCTP-only TSA.

TxReject

Measurement Group	IPFE Exception
Measurement Type	Simple

Measurement Dimension	Arrayed (by TSA ID)
Description	Number of new associations rejected. The IPFE rejects new associations when there are no available applications servers for the target set address. The associated alarm, 5009 - No available servers in target set (refer to the *DSR Alarms and KPIs Reference* for details about this alarm), will also be issued.
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time the IPFE rejects a new association for a target set address.
Measurement Scope	Network, NE, Server Group

Recovery

Check the status of the application servers by navigating to the **Status & Manage** > **Server** page.

TxRejectSctp

Measurement Group	IPFE Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	New SCTP associations rejected.
Collection Interval	5 minutes
Peg Condition	Incremented when an SCTP association is rejected.
Measurement Scope	Network, NE, Server Group

Recovery

None required

IP Front End (IPFE) Performance measurements

The "IPFE Performance" measurement group contains measurements that provide performance information that is specific to the IPFE application. Counts for various expected/normal messages and events are included in this group. Measurements such as the following are included.

Table 49: IPFE Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
AsNewAssociations	Number of new associations for each server	5 min
AsNewAssociationsSctp	Number of new SCTP associations for each server	5 min
IpfeNewAssociations	Number of new associations for the IPFE	5 min

Measurement Tag	Description	Collection Interval
IpfeNewAssociationsSctp	Number of new SCTP associations for the IPFE	5 min
RxIpfeBytes	Number of bytes received by the IPFE	5 min
RxIpfeBytesSctp	Number of SCTP bytes received by the IPFE	5 min
RxIpfePackets	Number of packets received by the IPFE	5 min
RxTsaBytes	Number of bytes received for each TSA	5 min
RxTsaBytesSctp	Number of SCTP bytes received for each TSA	5 min
RxTsaPackets	Number of packets received for each TSA	5 min
RxTsaPacketsSctp	Number of SCTP packets received for each TSA	5 min
TsaNewAssociations	Number of new associations for each TSA	5 min
TsaNewAssociationsSctp	Number of new SCTP associations for each TSA	5 min
TxAsBytes	Number of bytes sent for each server	5 min
TxAsBytesSctp	Number of SCTP bytes sent for each server	5 min
TxAsPackets	Number of packets sent for each server	5 min
TxAsPacketsSctp	Number of SCTP packets sent for each server	5 min

AsNewAssociations

Measurement Group IPFE Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Application Server ID)

Description New associations for each server.

Collection Interval 5 minutes

Peg Condition This measurement is incremented by one each time the IPFE associates a client packet with an application server.

Measurement Scope Network, NE, Server Group

Recovery

No action required

AsNewAssociationsSctp

Measurement Group IPFE Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Application Server ID)
Description	New SCTP associations for each server.
Collection Interval	5 minutes
Peg Condition	Incremented when a new SCTP association is established for an application server.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

IpfeNewAssociations

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	New associations for the IPFE.
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time the IPFE associates a client packet with an application server.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

IpfeNewAssociationsSctp

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	New SCTP associations for the IPFE
Collection Interval	5 minutes
Peg Condition	Incremented when a new SCTP association is established through an IPFE.
Measurement Scope	Network, NE, Server Group

Recovery

None required

RxIpfeBytes

Measurement Group	Simple
Measurement Type	IPFE Performance
Measurement Dimension	Single
Description	The number of bytes received by the IPFE.
Collection Interval	5 minutes, 30 minutes, 60 minutes
Peg Condition	The measurement is incremented by one for each byte the IPFE receives.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

RxIpfeBytesSctp

Measurement ID	5223
Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of SCTP bytes received by the IPFE.
Collection Interval	5 minutes, 30 minutes, 60 minutes
Peg Condition	Incremented by the packet payload size when an SCTP packet is received by the IPFE.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

RxIpfePackets

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Packets received by the IPFE
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one for each packet the IPFE receives.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

RxTsaBytes

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	Bytes received for each TSA.
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time a byte is received for a particular target set address.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

RxTsaBytesSctp

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	SCTP bytes received for each TSA
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time an SCTP byte is received for a particular target set address.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

RxTsaPackets

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	Packets received for each TSA
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time a packet is received for a particular TSA.

Measurement Scope	Network, NE, Server Group

Recovery

No action required

RxTsaPacketsSctp

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	SCTP packets received for each TSA.
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time an SCTP packet is received for a particular TSA.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

TsaNewAssociations

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	New associations for each target set address
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time the IPFE associates a client packet with a target set address.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

TsaNewAssociationsSctp

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	New SCTP associations for each TSA.
Collection Interval	5 minutes

Peg Condition	Incremented when a new SCTP association is established for a TSA.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

TxAsBytes

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Bytes sent for each server.
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time a byte is sent to a particular application server.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

TxAsBytesSctp

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TSA ID)
Description	SCTP bytes sent for each server.
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time an SCTP byte is sent to a particular application server.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

TxAsPackets

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Application Server ID)
Description	Packets sent for each server.

Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time a packet is sent to a particular application server.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

TxAsPacketsSctp

Measurement Group	IPFE Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Application Server ID)
Description	SCTP packets sent for each server.
Collection Interval	5 minutes
Peg Condition	This measurement is incremented by one each time an SCTP packet is sent to a particular application server.
Measurement Scope	Network, NE, Server Group

Recovery

No action required

Link Exception measurements

Table 50: Link Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvLnkActAckTO	Number of times the link timed out waiting for ASP-ACTIVE-ACK. ASP-ACTIVE-ACK is sent by the SG in response to an ASP-ACTIVE message on the link. The link is not available for M3UA data signaling until ASP-ACTIVE-ACK is received.	30 min
RxLnkUnsolInactAck	Number of times an unsolicited ASP-INACTIVE-ACK was received on the link. ASP-INACTIVE-ACK may be sent unsolicited by the SG to indicate that the specified link is no longer able to process M3UA data signaling. The MP server will begin attempts to bring the link back into the signaling state matching its administrative state. For example, if the link is **Enabled**, the MP server will attempt to restore M3UA data signaling on the link by sending an ASP-ACTIVE and waiting for an ASP-ACTIVE-ACK.	30 min

Measurement Tag	Description	Collection Interval
RxLnkM3uaERROR	Number of times an M3UA ERROR message was received for the link. M3UA ERROR message are sent to indicate invalid M3UA signaling.	30 min
RxLnkInvalidM3ua	Number of invalid M3UA messages received on the link. Invalid M3UA messages are messages that violate the M3UA protocol, but which can be attributed to a specific link (i.e., a valid routing context exists, or no routing context is necessary).	30 min

EvLnkActAckTO

Measurement Group Link Exception

Measurement Type Simple

Measurement Dimension Arrayed (per link)

Description The number of times the link timed out waiting for ASP-ACTIVE-ACK. An ASP-ACTIVE-ACK is sent by the SG in response to an ASP-ACTIVE message on the link. The link is not available for M3UA data signaling until the ASP-ACTIVE-ACK is received.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time an ASP-ACTIVE has been sent for the link and the M3UA State Management ACK timer has expired, but no ASP-ACTIVE-ACK was received for the link.

Measurement Scope NE, Server

Recovery

1. This measurement should have a zero value. You can view Link status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Links**.
2. Check the event history log from the GUI main menu under **Alarms & Events** > **View History**. Look for Event ID 19229, which shows when the ASP-ACTIVE-ACK timeout occurs.
3. Verify that the far-end of the link on the SG is not undergoing maintenance.
4. Verify that the **State Management ACK Timer** period is not set too short.
5. Verify that the IP network between the MP server and the SG is performing up to expectations.
6. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxLnkUnsolInactAck

Measurement Group Link Exception

Measurement Type Simple

Measurement Dimension Arrayed (per link)

Description	The number of times an unsolicited ASP-INACTIVE-ACK was received on the link. ASP-INACTIVE-ACK may be sent unsolicited by the SG to indicate that the specified link is no longer able to process M3UA data signaling. The MP server will begin attempts to bring the link back into the signaling state matching its administrative state. For example, if the link is **Enabled**, the MP server will attempt to restore M3UA data signaling on the link by sending an ASP-ACTIVE and waiting for an ASP-ACTIVE-ACK.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an unsolicited ASP-INACTIVE-ACK is received on the link.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a zero value. A non-zero value means that the far-end of the link has stopped processing M3UA data. You can view Link status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Links**.
2. Check the event history log from the GUI main menu under **Alarms & Events** > **View History**, looking for Event ID 19230. Event ID 19230 will show when the unsolicited ASP-INACTIVE-ACK was received.
3. Verify whether the far-end of the link is undergoing maintenance.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxLnkM3uaERROR

Measurement Group	Link Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per link)
Description	The number of times an M3UA ERROR message was received for the link. M3UA ERROR message are sent to indicate invalid M3UA signaling.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an M3UA ERROR message is received and that ERROR message can be attributed to a specific link (i.e., the ERROR message contains a valid routing context, or no routing context is needed).
Measurement Scope	NE, Server

Recovery

1. This measurement should have a value of zero. A non-zero value indicates a problem with the M3UA signaling sent by the MP server.
2. Look for Event ID 19235 from the GUI main menu under **Alarms & Events** > **View History**. **Event ID 19235** provides information on the reason for the receipt of the ERROR message.

3. If the ERROR reason in Event ID 19235 indicates a problem with routing context (i.e., error code 0x19), verify that the MP server link set and the SG are configured to agree on the routing context values that each M3UA signaling link uses.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxLnkInvalidM3ua

Measurement Group	Link Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per link)
Description	The number of invalid M3UA messages received on the link. Invalid M3UA messages are messages that violate the M3UA protocol, but which can be attributed to a specific link (i.e., a valid routing context exists or no routing context is necessary).
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an invalid M3UA message is received for the link.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a value of zero. A non-zero value indicates a problem with the M3UA signaling received by the MP server.
2. Look for Event ID 19231 from the GUI main menu under **Alarms & Events** > **View History**. Event ID 19231 provides information on the reason the M3UA message was rejected.
3. If the ERROR reason in Event ID 19231 indicates a problem with the routing context (i.e., error code 0x19), verify that the MP server link set and the SG are configured to agree on the routing context values that each M3UA signaling link uses.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Link Performance measurements

Note: ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are not counted in these measurement.

Table 51: Link Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxLnkMSU	Number of MSUs sent on the link. MSUs includes all M3UA messages, both DATA and non-DATA.	30 min
RxLnkMSU	Number of MSUs received on the link. MSUs includes all M3UA messages, both DATA and non-DATA.	30 min

Measurement Tag	Description	Collection Interval
TxLnkMSUOctets	Number of MSU octets sent on the link. MSU octets includes all M3UA messages, both DATA and non-DATA.	30 min
RxLnkMSUOctets	Number of MSU octets received on the link. MSU octets includes all M3UA messages, both DATA and non-DATA.	30 min

TxLnkMSU

Measurement Group Link Performance

Measurement Type Simple

Measurement Dimension Arrayed (per link)

Description The number of MSUs sent on the link, including all M3UA messages, both DATA and non-DATA.

Note: ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time an M3UA message is sent on the link.

Measurement Scope NE, Server

Recovery

No action required

RxLnkMSU

Measurement Group Link Performance

Measurement Type Simple

Measurement Dimension Arrayed (per link)

Description The number of MSUs received on the link. MSUs includes all M3UA messages, both DATA and non-DATA. Note: ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time an M3UA message is received on the link.

Measurement Scope NE, Server

Recovery

No action required.

TxLnkMSUOctets

Measurement Group	Link Performance
Measurement Type	Arrayed (per link)
Measurement Dimension	Simple
Description	The number of MSU octets sent on the link, including all M3UA messages, both DATA and non-DATA. **Note:** ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.
Collection Interval	30 min
Peg Condition	This measurement is incremented by the number of octets in the MSU (not including SCTP, IP, or Ethernet headers) each time an M3UA message is sent on the link.
Measurement Scope	NE, Server

Recovery

No action required.

RxLnkMSUOctets

Measurement Group	Link Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (per link)
Description	The number of MSU octets received on the link – MSU octets includes all M3UA messages, both DATA and non-DATA. Note: ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.
Collection Interval	30 min
Peg Condition	This measurement is incremented by the number of octets in the MSU (not including SCTP, IP, or Ethernet headers) each time an M3UA message is received on the link.
Measurement Scope	NE, Server

Recovery

No action required.

Link Set Performance measurements

Table 52: Link Set Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxLnkSetMSU	Number of MSUs sent on the link set. MSUs includes all M3UA DATA messages sent on all links in the link set.	30 min
RxLnkSetMSU	Number of MSUs received on the link set. MSUs includes all M3UA DATA messages received on all links in the link set.	30 min
TxLnkSetMSUOctets	Number of MSU octets sent on the link set. MSU octets includes all M3UA DATA octets sent on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.	30 min
RxLnkSetMSUOctets	Number of MSU octets received on the link set. MSU octets includes all M3UA DATA octets received on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.	30 min

TxLnkSetMSU

Measurement Group Link Set Performance

Measurement Type Simple

Measurement Dimension Arrayed (per link set)

Description The number of MSUs sent on the link set , including all M3UA DATA messages sent on all links in the link set.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time an M3UA DATA message is sent on a link in the link set.

Measurement Scope NE, Server

Recovery

No action required.

RxLnkSetMSU

Measurement Group Link Set Performance

Measurement Type Simple

Measurement Dimension Arrayed (per link set)

Description	The number of MSUs sent on the link set, including all M3UA DATA messages received on all links in the link set.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an M3UA DATA message is received on a link in the link set.
Measurement Scope	NE, Server

Recovery

No action required.

TxLnkSetMSUOctets

Measurement Group	Link Set Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (per link set)
Description	The number of MSU octets sent on the link set, including all M3UA DATA octets sent on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.
Collection Interval	30 min
Peg Condition	This measurement is incremented by the number of octets in the M3UA DATA message each time an M3UA DATA message is sent on a link in the link set.
Measurement Scope	NE, Server

Recovery

No action required.

RxLnkSetMSUOctets

Measurement Group	Link Set Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (per link set)
Description	The number of MSU octets received on the link set, including all M3UA DATA octets received on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.
Collection Interval	30 min
Peg Condition	This measurement is incremented by the number of octets in the M3UA DATA message each time an M3UA DATA message is received on a link in the link set.
Measurement Scope	NE, Server

Recovery

No action required.

Link Set Usage measurements

Table 53: Link Set Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
TmM3RLLinksetUnavail	Total time (in seconds) that all links in the link set were unavailable to M3RL during the measurement interval, regardless of whether the links were automatically or manually made unavailable.	30 min

TmM3RLLinksetUnavail

Measurement Group Link Set Usage

Measurement Type Duration

Measurement Dimension Arrayed (by Linkset)

Description Total time (in seconds) that all links in the link set were unavailable to M3RL during the measurement interval, regardless of whether the links were automatically or manually made unavailable.

Collection Interval 30 min

Peg Condition M3RL must maintain an accurate time and measurement of the number of seconds during the collection period that the Link Set's state is **Unavailable**. This measurement is associated with the duration (in seconds) that Alarm 19202 - Link Set Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted during the collection period.

Start of duration measurement for Link Set "X" criteria:

1. Alarm 19202 is asserted for Link Set "X."
2. Start of new collection period AND Alarm 19202 for Linkset "X" is already asserted (during a previous collection interval).

Stop of duration measurement for Link Set "X" criteria:

1. Alarm 19202 for Linkset "X" is cleared (i.e, Link Set becomes **Available**).
2. End of collection interval.

Measurement Scope

Recovery

This value provides a measure of the availability of a Link Set. No action required.

Link Usage measurements

Table 54: Link Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
TmLnkMOOS	Number of seconds the link is manual out of service during the reporting period. A link is manual out of service when the link is in the **Disabled** administrative state.	30 min
TmLnkOOS	Number of seconds the link is out of service for any reason during the reporting period. A link may be out of service due to: • Maintenance activity: link is **Disabled** or the link's association is **Disabled** or **Blocked**. • Failure of the link to receive ASP-ACTIVE-ACK. • Receipt of unsolicited ASP-INACTIVE-ACK from the SG. • A link's association is not in the **Normal** status: failed to establish SCTP connection, failed to receive ASP-UP-ACK, received unsolicited ASP-DOWN-ACK.	30 min
TmLnkAvailable	Number of seconds the link is in service during the reporting period. The link is considered to be in service if the link's status reason is **Normal**. An in-service link is available for M3UA DATA signaling.	30 min
EvLnkManClose	Number of times a link was closed due to manual action. This count indicates the number of times that a link transitioned from ASP-ACTIVE to ASP-INACTIVE as a direct result of someone changing the link administrative state from **Enabled** to **Disabled**.	30 min

TmLnkMOOS

Measurement Group	Link Usage
Measurement Type	Duration
Measurement Dimension	Arrayed (per link)
Description	The number of seconds the link is manual out of service during the reporting period. A link is manual out of service when the link is in the **Disabled** administrative state.

Collection Interval	Time is accumulated for this measurement when the link administrative state is set to **Disabled**. **Note:** The link is not considered to be manually out of service if the link is in the **Enabled** administrative state even if the association that hosts the link is manually out of service.
Peg Condition	30 min
Measurement Scope	NE, Server

Recovery

1. If a non-zero value in this field is unexpected (i.e., no link maintenance is known to have occurred), the link status can be viewed from the GUI under **SS7/Sigtran** > **Maintenance** > **Links**.
2. Also, look in the GUI main menu under **Alarms & Events** > **View History** in the event history for Event 19234 - Local link maintenance state change (refer to the *DSR Alarms and KPIs Reference* for details about this event). Event 19234 records each change in the link's administrative state. If the link was known to be under maintenance, this value represents the number of seconds during the reporting period that the link was in the **Disabled** administrative state.

TmLnkOOS

Measurement Group	Link Usage
Measurement Type	Duration
Measurement Dimension	Arrayed (per link)
Description	The number of seconds the link is out of service for any reason during the reporting period. A link may be out of service due to the following conditions: • Maintenance activity – link is **Disabled** or link's association is **Disabled** or **Blocked**. • Failure of the link to receive ASP-ACTIVE-ACK. • Receipt of unsolicited ASP-INACTIVE-ACK from the SG. • The link's association is not in the **Normal** status – failed to establish SCTP connection, failed to receive ASP-UP-ACK, received unsolicited ASP-DOWN-ACK
Collection Interval	30 min
Peg Condition	Time is accumulated for this measurement when the link status reason is not **Normal**.
Measurement Scope	NE, Server

Recovery

1. This measurement should have a value of zero. If the link or the link's association is known to be under maintenance, then a non-zero value in this measurement is expected.
2. Otherwise, the link status can be viewed from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Links**.
3. Also look in the event history from the GUI main menu under **Alarms & Events** > **View History** for events related to this link or the link's association.

4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmLnkAvailable

Measurement Group	Link Usage
Measurement Type	Duration
Measurement Dimension	Arrayed (per link)
Description	The number of seconds the link is in service during the reporting period. The link is considered to be in service if the link's status reason is **Normal**. An in-service link is available for M3UA DATA signaling.
Collection Interval	30 min
Peg Condition	Time is accumulated for this measurement when the link status reason is **Normal**.
Measurement Scope	NE, Server

Recovery

1. If all is well, this value should equal the length of the reporting period, meaning that the link was active for the entire reporting period. If the link-available time is not equal to the reporting period, it could be due to one of the following conditions:
   - Link maintenance. The measurements **TmLnkMOOS** and **TmLnkOOS** should have a non-zero values. See the actions for *TmLnkMOOS*.
   - Link failure. The measurement **TmLnkOOS** should have a non-zero value. See the actions for*TmLnkOOS*.
   - The link was added during the reporting period. The report indicates that the data is incomplete for the reporting period.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvLnkManClose

Measurement Group	Link Usage
Measurement Type	Simple
Measurement Dimension	
Description	The number of times a link was closed due to manual action. This count indicates the number of times that a link transitioned from ASP-ACTIVE to ASP-INACTIVE as a direct result of someone changing the link administrative state from **Enabled** to **Disabled**
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time the link administrative state is changed from **Enabled** to **Disabled**, causing a protocol state transition from ASP-ACTIVE to ASP-INACTIVE.
Measurement Scope	NE, Server

Recovery

1. If the link is known to be under maintenance, then no further action is necessary. If the link was not known to be under maintenance, then link status can be viewed from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Links**.
2. View the event history from the GUI main menu under **Alarms & Events** > **View History** looking for **Event ID 19234**. **Event ID 19234** shows the manual link state transitions and contains a time-stamp of when the change occurred.
3. The security logs from the GUI main menu under **Security Logs** can be searched using the time-stamp from the event history log to determine which login performed the manual state change on the link.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

MD-IWF Exception Measurements

The MD-IWF Exception measurement report contains measurements providing information about transaction processing exceptions that are specific to the MAP-Diameter IWF Application running on a SS7-MP.

Table 55: MD-IWF Exception Measurements

Measurement Tag	Description	Collection Interval
TxMdIwfSs7TransmitFailure	Number of outgoing SS7 messages to the SS7 network that could not be routed (e.g. queue full)	5 min
RxMdIwfOrphanMapResponse	Number of orphan MAP Response messages received	5 min
EvMdIwfMapResponseTimeout	Number of timeouts waiting for MAP Response	5 min
RxMdIwfDiamNon2xxxAnswer	Number of Diameter Non-2xxx Answers received	5 min
RxMdIwfOrphanDiamAnswer	Number of orphan Diameter Answer messages received	5 min
EvMdIwfDiamAnswerTimeout	Number of timeouts waiting for Diameter Answer	5 min
RxMdIwfDiamAnswer UnexpectedDaMp	MD-IWF received Diameter Answer from unexpected DA-MP	5 min
TxMdIwfFailComAgentEnqueue	Number of times MD-IWF failed to enqueue a Diameter message to ComAgent	5 min
RxMdIwfComAgentError	Number of Diameter Request messages sent to DA-MP that resulted in ComAgent error/timeout or in DM-IWF NACK	5 min

Measurement Tag	Description	Collection Interval
RxMdIwfDiamPduPoolEmpty	Number of messages discarded when Diameter PDU pool is exhausted	5 min
EvMdIwfInterwrkFail	Number of interworking attempts that failed for any reason (internal or because of something from the far end)	5 min
EvMdIwfInterwrkFailAddrTrans	Number of interworking attempts that failed while attempting Address Translation (either **MAP** > **Diameter** or **Diameter** > **MAP**)	5 min
EvMdIwfInterwrkFailMsgTrans	Number of interworking attempts that failed while attempting message translation (encode or decode)	5 min
TxMdIwfDiamEdlEncodeFailure	Number of times an EDL failure occurred while MD-IWF attempted to encode a Diameter message	5 min
EvMdIwfInterwrkFailCongest	Number of interworking attempts that failed due to MD-IWF congestion	5 min
EvMdIwfInterwrkFailFar EndResponse	Number of interworking attempts that failed due to error response received from far end	5 min
EvMdIwfInterwrkFail DsrInitiated	Number of interworking attempts that failed due to action initiated by MD-IWF (not due to far end)	5 min
EvMdIwfInterwrkFailSysError	Number of interworking attempts that failed due to internal processing error	5 min
EvMdIwfMessageFailResExh	Number of times a message could not be processed due to resource exhaustion	5 min
EvMdIwfTransRejectBy DiamExtNode	Number of transactions where Diameter external node sends non-2xxx Answer to DSR, and MD-IWF sends error response to SS7	5 min

TxMdIwfSs7TransmitFailure

Measurement Group MD-IWF Exception

Measurement Type Simple

Measurement Dimension Single

Description The number of outgoing SS7 messages to the SS7 network that could not be routed (e.g. queue full).

Collection Interval 5 min

Peg Condition Each time MD-IWF attempts to send a MAP message to the SS7 network (via the SS7 stack), but the message could not be routed.

Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

RxMdIwfOrphanMapResponse

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of orphan MAP Response messages received.
Collection Interval	5 min
Peg Condition	Each time the MD-IWF Application received a MAP response message for which no Pending Transaction record exists.
Measurement Scope	Site

Recovery

1. If this measurement is being pegged frequently, the configurable MAP Response timer may be set too low. The MAP Response Timeout value can be viewed via **Main Menu** > **MAP-Diameter IWF** > **Configuration** > **MD-IWF Option**.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvMdIwfMapResponseTimeout

Measurement Group	MD-IWF Exception
Measurement Type	Single
Measurement Dimension	Simple
Description	The number of timeouts waiting for MAP Response.
Collection Interval	5 min
Peg Condition	Each time the MD-IWF Application sent a MAP request message to the SS7 network, but timed out waiting for the MAP response
Measurement Scope	Site

Recovery

1. Diameter-to-MAP timeouts are most likely caused by excessive SS7 network delays. It is possible that the MAP Response Timeout value is set too low.
2. The configured MAP Response Timeout value can be viewed via the NO GUI **Main Menu** > **MAP-Diameter IWF** > **Configuration** > **MD-IWF Options**.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxMdIwfDiamNon2xxxAnswer

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Non-2xxx Answers received.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a Diameter Answer message from a DA-MP where the result-Code value is non-2xxx
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* if this measurement is being pegged frequently.

RxMdIwfOrphanDiamAnswer

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of orphan Diameter Answer messages received.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a Diameter Answer message for which no Pending Transaction record exists
Measurement Scope	Site

Recovery

1. When MD-IWF sends a Diameter Request message to a DA-MP, it allocated a PTR and starts a timer (value is user configurable). The pending transaction is abandoned if a Diameter Answer response is not received within the user-configurable time limit. If this event is occurring frequently, the timer may be set too low. The Diameter Response Timeout value can be viewed via the **Main Menu** > **MAP-Diameter IWF** > **Configuration** > **MD-IWF Options** NO GUI Screen.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvMdIwfDiamAnswerTimeout

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of timeouts following message sent to DA-MP.
Collection Interval	5 min
Peg Condition	Each time D-IWF sends a Diameter Request message to the DA-MP, but times out waiting for the Diameter Answer
Measurement Scope	Site

Recovery

1. MAP-to-Diameter timeouts could be caused by delays in the Diameter network. It is possible that the Diameter Response Timeout value is set too low.
2. The configured Diameter Response Timeout value can be viewed via the NO GUI **Main Menu** > **MAP-Diameter IWF** > **Configuration** > **MD-IWF Options**.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxMdIwfDiamAnswerUnexpectedDaMp

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Answer messages received from unexpected DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives Diameter Answer from an unexpected DA-MP.
Measurement Scope	Site

Recovery

This error is not expected to occur. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxMdIwfFailComAgentEnqueue

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times MD-IWF failed to enqueue a Diameter message to ComAgent.
Collection Interval	5 min
Peg Condition	Each time MD-IWF attempts to send a Diameter message to a DA-MP via ComAgent, but is unable to enqueue the message.

Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

RxMdIwfComAgentError

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Request messages sent to DA-MP that results in ComAgent error / timeout or in DM-IWF NACK
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a Diameter Request message to DM-IWF that results in a ComAgent error / timeout or in a DM-IWF NACK.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDiamPduPoolEmpty

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages discarded when Diameter PDU pool is exhausted.
Collection Interval	5 min
Peg Condition	Each time MD-IWF discards a message due to Diameter PDU pool exhaustion
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfInterwrkFail

Measurement Group	MD-IWF Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of interworking attempts that failed for any reason (internal or because of something from the far end).
Collection Interval	5 min
Peg Condition	Each time an interworking attempt by MD-IWF fails. **Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt. **Note:** A Diameter-initiated interworking attempt fails if the final Diameter Answer sent back has a non-2xxx result code. A MAP-initiated interworking attempt fails if the final MAP response message is an abort, error, or reject. It is also a failure if the configured Diameter Exception or MAP Exception is carried out.
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfInterwrkFailAddrTrans

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of interworking attempts that failed while attempting Address Translation (either Map-to-Diameter or Diameter-to-Map).
Collection Interval	5 min
Peg Condition	Each time a failure occurs when MD-IWF attempts to perform address translation. **Note:** Address Translation involves converting between Diameter addresses (i.e. Orig- and Dest- Host & Realm) and SS7 addresses (i.e. CgPa, CdPa, OPC, DPC).
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfInterwrkFailMsgTrans

Measurement Group	MD-IWF Exception
Measurement Type	Single
Measurement Dimension	Simple
Description	The number of interworking attempts that failed while attempting message translation.
Collection Interval	5 min
Peg Condition	Each time a failure occurs when MD-IWF attempts to perform message translation. **Note:** Message Translation involves mapping between AVPs in a Diameter message and parameters in a MAP message.
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

TxMdIwfDiamEdlEncodeFailure

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of times an EDL failure occurred while MD-IWF attempted to encode a Diameter message
Collection Interval	5 min
Peg Condition	This measurement is pegged each time MD-IWF attempts to encode a Diameter message to be sent to a DA-MP, but an EDL encode failure occurs. Event 33080 - EDL failure occurred while MD-IWF attempted to encode a Diameter message (refer to the *DSR Alarms and KPIs Reference* for details about this event) will be raised when this condition occurs.
Measurement Scope	Site

Recovery

1. If the encode failure is due to Diameter message size - the failure reason can be determined from Event 33080 - EDL failure occurred while MD-IWF attempted to encode a Diameter message (refer to the *DSR Alarms and KPIs Reference* for details about this event) - it may be necessary to increase the engineering configurable parameter (DiameterMaxMessageSize in table MapIwfLongConfig) for maximum Diameter message size.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfInterwrkFailCongest

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of interworking attempts that failed due to MD-IWF Congestion.
Collection Interval	5 min
Peg Condition	Each time an interworking attempt by MD-IWF fails due to MD-IWF congestion. **Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt.
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfInterwrkFailFarEndResponse

Measurement Group	MD-IWF Exception
Measurement Type	Single
Measurement Dimension	Simple
Description	Number of interworking attempts that failed due to error response received from far end
Collection Interval	This measurement is pegged each time an interworking attempt by MD-IWF fails due to receiving an error response from the far end. The error response could be a non-2xxx Diameter Answer, or a MAP U-Abort or Reject. **Note:** An interworking attempt is defined in *EvMdIwfInterwrkAttempt*
Peg Condition	5 min
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfInterwrkFailDsrInitiated

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of interworking attempts that failed due to action initiated by MD-IWF (not due to far end)
Collection Interval	5 min
Peg Condition	This measurement is pegged each time an interworking attempt by MD-IWF fails due to an action initiated by MD-IWF (i.e. message translation failed, address translation failed, timeout occurred). This measurement does NOT include failures that are due to an error response received from the far end. **Note:** An interworking attempt is defined in *EvMdIwfInterwrkAttempt*.
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfInterwrkFailSysError

Measurement Group	MD-IWF Exception
Measurement Type	Single
Measurement Dimension	Simple
Description	The number of interworking attempts that failed due to internal processing error.
Collection Interval	5 min
Peg Condition	Each time an interworking attempt by MD-IWF fails due to internal processing error. **Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt. **Note:** Examples of internal processing errors are ComAgent error, ComAgent congestion, and resource exhaustion.
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfMessageFailResExh

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times a message could not processed due to resource exhaustion.
Collection Interval	5 min
Peg Condition	Each time a message cannot be processed by MD-IWF due to resource exhaustion. **Note:** Examples of resource exhaustion are PTR exhaustion, PDU exhaustion, and queue full.
Measurement Scope	Site

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if this measurement is being pegged frequently.

EvMdIwfTransRejectByDiamExtNode

Measurement Group	MD-IWF Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of transactions where Diameter external node sends non-2xxx Answer to DSR, and MD-IWF sends error response to SS7
Collection Interval	5 min
Peg Condition	This measurement is pegged when a Diameter external node sends a non-2xxx Answer to DSR, which is then forwarded by DM-IWF (on DA-MP) to MD-IWF (on SS7-MP), and MD-IWF in turn sends an error response (Abort or Reject) to the SS7 network.
Measurement Scope	Site

Recovery

No action required

MD-IWF Performance measurements

The MD-IWF Performance measurement report contains measurements providing performance that is specific to the MAP-Diameter IWF Application running on a SS7-MP.

Table 56: MD-IWF Performance Measurements

Measurement Tag	Description	Collection Interval
RxMdIwfSS7Msg	Number of MAP messages received from the SS7 network	5 min
TxMdIwfSS7Msg	Number of MAP messages sent to SS7 network	5 min
RxMdIwfMapRequestMsg	Number of MAP request messages received from SS7 network	5 min
TxMdIwfMapRequestMsg	Number of MAP request messages sent to SS7 network	5 min
RxMdIwfMapResponseMsg	Number of MAP response messages received from SS7 network	5 min
TxMdIwfMapResponseMsg	Number of MAP response messages sent to SS7 network	5 min
RxMdIwfDiamMsg	Number of Diameter messages received from DA-MP	5 min
TxMdIwfDiamMsg	Number of Diameter messages sent to DA-MP	5 min
RxMdIwfDiamRequestMsg	Number of Diameter Request messages received from DA-MP	5 min
RxMdIwfDiamAnswerMsg	Number of Diameter Answer messages received from DA-MP	5 min
TxMdIwfDiamRequestMsg	Number of Diameter Request messages sent to DA-MP	5 min
TxMdIwfDiamAnswerMsg	Number of Diameter Answer messages sent to DA-MP	5 min
EvMdIwfInterwrkAttempt	Total number of interworking attempts made. One attempt includes all of the messages within a transaction that are required to perform the interworking (not counting each message). A transaction can be Diameter-originated or MAP-originated	5 min

Measurement Tag	Description	Collection Interval
EvMdIwfInterwrkSuccess	Number of interworking attempts that were completely successful where the final Diameter message sent back had a result code of 2xxx or the final MAP message was a result and not an abort, error, or reject	5 min
RxMdIwfIngressMsgCount	Total number of messages received by MD-IWF. Includes MAP msgs received from SS7 network, and Diameter msgs received from DA-MPs	5 min
RxMdIwfIngressMsgRateAvg	Average MD-IWF ingress message rate. Includes MAP msgs received from SS7 network, and Diameter msgs received from DA-MPs	5 min
RxMdIwfIngressMsgRatePeak	Peak MD-IWF ingress message rate. Includes MAP msgs received from SS7 network, and Diameter msgs received from DA-MPs	5 min
RxMap2DiamTransMsgCount	Total number of MAP-to-Diameter transaction msgs received by MD-IWF	5 min
RxMap2DiamTransMsgRateAvg	Average MAP-to-Diameter transaction message rate	5 min
RxMap2DiamTransMsgRatePeak	Peak MAP-to-Diameter transaction message rate	5 min
RxDiam2MapTransMsgCount	Total number of Diameter-to-MAP transaction msgs received by MD-IWF	5 min
RxDiam2MapTransMsgRateAvg	Average Diameter-to-MAP transaction message rate	5 min
RxDiam2MapTransMsgRatePeak	Peak Diameter-to-MAP transaction message rate	5 min
RxMdIwfDiamTransMsgQueuePeak	Peak DiamTrans Task Message Queue utilization	5 min
RxMdIwfDiamTransMsgQueueAvg	Average DiamTrans Task Message Queue utilization	5 min
RxMdIwfMapTransMsgQueuePeak	Peak MapTrans Task Message Queue utilization	5 min
RxMdIwfMapTransMsgQueueAvg	Average MapTrans Task Message Queue utilization	5 min
RxMdIwfDampInterfaceMsgQueuePeak	Peak DampInterface Task Message Queue utilization	5 min

Measurement Tag	Description	Collection Interval
RxMdIwfDampInterfaceMsgQueueAvg	Average DampInterface Task Message Queue utilization	5 min
EvMdIwfDiam2MapPtrUtilPeak	Peak DiamToMap PTR utilization	5 min
EvMdIwfDiam2MapPtrUtilAvg	Average DiamToMap PTR utilization	5 min
EvMdIwfMap2DiamPtrUtilPeak	Peak MapToDiam PTR utilization	5 min
EvMdIwfMap2DiamPtrUtilAvg	Average MapToDiam PTR utilization	5 min
TmMdIwfMap2DiamPtrHoldTimeAvg	Average hold time (in milliseconds) of MAP-to-Diameter transactions processed by MD-IWF	5 min
TmMdIwfDiam2MapPtrHoldTimeAvg	Average hold time (in milliseconds) of Diameter-to-MAP transactions processed by MD-IWF	5 min
EvMdIwfTransSuccessByDiamExtNode	Number of transactions where Diameter external node sends success (2xxx) Answer to DSR, and MD-IWF sends success response to SS7	5 min

RxMdIwfSS7Msg

Measurement Group MD-IWF Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of MAP messages received from the SS7 network.

Collection Interval 5 min

Peg Condition Each time MD-IWF receives a MAP message from the SS7 network. This includes both request and response messages.

Measurement Scope Site

Recovery

No action required.

TxMdIwfSS7Msg

Measurement Group MD-IWF Performance

Measurement Type Simple

Measurement Dimension Single

Description	The number of MAP messages sent to SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a MAP message to the SS7 network. This includes both request and response messages.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfMapRequestMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MAP request messages received from SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a MAP request message from the SS7 network.
Measurement Scope	Site

Recovery

No action required

TxMdIwfMapRequestMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MAP request messages to SS7 network
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a MAP request message to the SS7 network
Measurement Scope	Site

Recovery

No action required.

RxMdIwfMapResponseMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MAP response messages received from SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a MAP response message from the SS7 network
Measurement Scope	Site

Recovery

No action required.

TxMdIwfMapResponseMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MAP response messages sent to SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a MAP response message to the SS7 network. This measurement counts "success" responses, but doesn't count errors, rejects, or aborts.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDiamMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter messages from DA-MP.
Collection Interval	5 min

Peg Condition	Each time MD-IWF receives a Diameter message from a DA-MP. This includes both Request and Answer messages.
Measurement Scope	Site

Recovery

No action required.

TxMdIwfDiamMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter successfully sent to DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a Diameter message to a DA-MP. This includes both Request and Answer messages.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDiamRequestMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Request messages received from DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a Diameter Request message from a DA-MP.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDiamAnswerMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of Diameter Answer messages received from DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a Diameter Answer message from a DA-MP.
Measurement Scope	Site

Recovery

No action required.

TxMdIwfDiamRequestMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Request messages sent to DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a Diameter Request message to a DA-MP
Measurement Scope	Site

Recovery

No action required.

TxMdIwfDiamAnswerMsg

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Answer messages sent to DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a Diameter Answer message to a DA-MP.
Measurement Scope	Site

Recovery

No action required.

EvMdIwfInterwrkAttempt

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Total number of interworking attempts made. One attempt includes all of the messages within a transaction that are required to perform the interworking (not counting each message). A transaction can be Diameter-originated or MAP-originated
Collection Interval	5 min
Peg Condition	Each time MD-IWF attempts to translate a MAP message into a Diameter message or translate a Diameter message into a MAP message. **Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt.
Measurement Scope	Site

Recovery

No action required.

EvMdIwfInterwrkSuccess

Measurement Group	MD-IWF Performance
Measurement Type	Single
Measurement Dimension	Simple
Description	The total number of interworking attempts that were completely successful where the final Diameter message sent back had a result code of 2xxx of the final MAP message was a result and not an abort, error, or reject.
Collection Interval	5 min
Peg Condition	Each time MD-IWF successfully completes an interworking attempt. **Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt. **Note:** A Diameter-initiated interworking attempt is successful if the final Diameter Answer sent back has a result code of 2xxx. A MAP-initiated interworking attempt is successful if the final MAP response message is a result and not an abort, error, or reject.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfIngressMsgCount

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of messages received by MD-IWF, including MAP messages received from the SS7 network and Diameter messages received from DA-MPs.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a message. This number includes MAP messages that are received from the SS7 network and Diameter messages that are received from DA-MPs. **Note:** This measurement serves as a baseline for calculating measurements *RxMdIwfIngressMsgRateAvg* and *RxMdIwfIngressMsgRatePeak* as well as KPI Ingress Message Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	Site

Recovery

No action required.

RxMdIwfIngressMsgRateAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average MD-IWF ingress message rate, including MAP messages received from SS7 network and Diameter messages received from DA-MPs.
Collection Interval	5 min
Peg Condition	Each time KPI Ingress Message Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples *RxMdIwfIngressMsgCount*.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfIngressMsgRatePeak

Measurement Group	MD-IWF Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak MD-IWF ingress message rate, including MAP messages received from SS7 network and Diameter messages received from DA-MPs.
Collection Interval	5 min
Peg Condition	Each time KPI Ingress Message Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples *RxMdIwfIngressMsgCount*.
Measurement Scope	Site

Recovery

No action required.

RxMap2DiamTransMsgCount

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of MAP-to-Diameter transaction messages by MD-IWF.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a MAP request message from the SS7 network and each subsequent message that MD-IWF receives in the MAP-to-Diameter transaction. **Note:** For example, MD-IWF could receive a CancelLocationArg from the SS7 network, send a Diameter CLR to a DA-MP, receive a Diameter CLA from a DA-MP, and send a CancelLocationRes to the SS7 network. In this example, there are 2 messages that are pegged in the MAP-to-Diameter transaction. **Note:** This measurement serves as a baseline for calculating measurements *RxMap2DiamTransMsgRateAvg* and *RxMap2DiamTransMsgRatePeak* as well as KPI MAP-to-Diameter Ingress Msg Rate found in KPI MAP-to-Diameter Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	Site

Recovery

No action required.

RxMap2DiamTransMsgRateAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average MAP-to-Diameter transaction messages rate.
Collection Interval	5 min
Peg Condition	Each time KPI MAP-to-Diameter Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples *RxMap2DiamTransMsgCount*.
Measurement Scope	Site

Recovery

No action required.

RxMap2DiamTransMsgRatePeak

Measurement Group	MD-IWF Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak MAP-to-Diameter transaction messages rate.
Collection Interval	5 min
Peg Condition	Each time KPI MAP-to-Diameter Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples *RxMap2DiamTransMsgCount*.
Measurement Scope	Site

Recovery

No action required.

RxDiam2MapTransMsgCount

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of Diameter-to-MAP transaction messages received by MD-IWF.
Collection Interval	5 min

Peg Condition	Each time MD-IWF receives a Diameter Request message from a DA-MP and each subsequent message that MD-IWF receives in the Diameter-to-MAP transaction. **Note:** For example, MD-IWF could receive a Diameter CLR message from the a DA-MP, send a CancelLocationArg to the SS7 Network, receive a CancelLocationRes from the SS7 network, and send a Diameter CLA to the DA-MP. In this example, there are 2 messages that are pegged in the MAP-to-Diameter transaction. **Note:** This measurement serves as a baseline for calculating measurements *RxDiam2MapTransMsgRateAvg* and *RxDiam2MapTransMsgRatePeak* as well as KPI Diameter-to-MAP Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	Site

Recovery

No action required.

RxDiam2MapTransMsgRateAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Diameter-to-MAP transaction message rate.
Collection Interval	5 min
Peg Condition	Each time KPI Diameter-to-MAP Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples *RxDiam2MapTransMsgCount*.
Measurement Scope	Site

Recovery

No action required.

RxDiam2MapTransMsgRatePeak

Measurement Group	MD-IWF Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Diameter-to-MAP transaction message rate.
Collection Interval	5 min

Peg Condition	Each time KPI Diameter-to-MAP Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples *RxDiam2MapTransMsgCount*.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDiamTransMsgQueuePeak

Measurement Group	MD-IWF Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Task ID)
Description	The peak DiamTrans Task Message Queue utilization.
Collection Interval	5 min
Peg Condition	For each DiamTrans task, this peg represents the maximum DiamTrans Task Message Queue utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDiamTransMsgQueueAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Task ID)
Description	The average DiamTrans Task Message Queue utilization.
Collection Interval	5 min
Peg Condition	For each DiamTrans task, this peg represents the average DiamTrans Task Message Queue utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfMapTransMsgQueuePeak

Measurement Group	MD-IWF Performance
Measurement Type	Max

Measurement Dimension	Arrayed (by Task ID)
Description	The peak MapTrans Task Message Queue utilization.
Collection Interval	5 min
Peg Condition	For each MapTrans task, this peg represents the maximum MapTrans Task Message Queue utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfMapTransMsgQueueAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Task ID)
Description	The average MapTrans Task Message Queue utilization.
Collection Interval	5 min
Peg Condition	For each MapTrans task, this peg represents the average MapTrans Task Message Queue utilization sample taken during the collection interval
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDampInterfaceMsgQueuePeak

Measurement Group	MD-IWF Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DampInterface Task Message Queue utilization.
Collection Interval	5 min
Peg Condition	This peg represents the maximum DAMPInterface Task Message Queue utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDampInterfaceMsgQueueAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average DampInterface Task Message Queue utilization.
Collection Interval	5 min
Peg Condition	This peg represents the average DAMPInterface Task Message Queue utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

EvMdIwfDiam2MapPtrUtilPeak

Measurement Group	MD-IWF Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak DiamToMap PTR utilization.
Collection Interval	5 min
Peg Condition	This peg represents the maximum DiamToMap PTR utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

EvMdIwfDiam2MapPtrUtilAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average DiamToMap PTR utilization.
Collection Interval	5 min
Peg Condition	This peg represents the average DiamToMap PTR utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required

EvMdIwfMap2DiamPtrUtilPeak

Measurement Group	MD-IWF Performance
Measurement Type	Single
Measurement Dimension	Max
Description	The peak MapToDiam PTR utilization.
Collection Interval	5 min
Peg Condition	This peg represents the maximum MapToDiam PTR utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required.

EvMdIwfMap2DiamPtrUtilAvg

Measurement Group	MD-IWF Performance
Measurement Type	Single
Measurement Dimension	Average
Description	The average MapToDiam PTR utilization.
Collection Interval	5 min
Peg Condition	This peg represents the average MapToDiam PTR utilization sample taken during the collection interval.
Measurement Scope	Site

Recovery

No action required

TmMdIwfMap2DiamPtrHoldTimeAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average hold time (in milliseconds) of MAP-to-Diameter transactions processed by MD-IWF
Collection Interval	5 min

Peg Condition	The transaction hold time begins when a MAP-to-Diam Pending Transaction Record (PTR) is allocated and ends when the PTR is deallocated. This measurement is pegged when the PTR is deallocated.
Measurement Scope	Site

Recovery

No action required

TmMdIwfDiam2MapPtrHoldTimeAvg

Measurement Group	MD-IWF Performance
Measurement Type	Average
Measurement Dimension	Single
Description	Average hold time (in milliseconds) of Diameter-to-MAP transactions processed by MD-IWF
Collection Interval	5 min
Peg Condition	The transaction hold time begins when a Diam-to-MAP Pending Transaction Record (PTR) is allocated and ends when the PTR is deallocated. This measurement is pegged when the PTR is deallocated.
Measurement Scope	Site

Recovery

No action required

RxMdIwfMapTcBegin

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of TCAP Begin requests received.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a TCAP Begin message from the SS7 network.
Measurement Scope	Site

Recovery

No action required

EvMdIwfTransSuccessByDiamExtNode

Measurement Group	MD-IWF Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of transactions where Diameter external node sends success (2xxx) Answer to DSR, and MD-IWF sends success response to SS7
Collection Interval	5 min
Peg Condition	This measurement is pegged when a Diameter external node sends a success (2xxx) Answer to DSR, which is then forwarded by DM-IWF (on DA-MP) to MD-IWF (on SS7-MP), and MD-IWF in turn sends a success response (not an Abort or Reject) to the SS7 network.
Measurement Scope	Site

Recovery

No action required

MD-IWF SS7 Performance measurements

The MD-IWF SS7 Performance measurement report contains measurements providing performance that is specific to the MAP-Diameter IWF Application running on a SS7-MP.

Table 57: MD-IWF SS7 Performance Measurements

Measurement Tag	Description	Collection Interval
RxMdIwfMapRequestMsgByOpcode	Number of MAP request messages with Op Code "X" received from SS7 network	5 min
RxMdIwfMapResponseMsgByOpcode	Number of MAP response messages with Op Code "X" received from SS7 network	5 min
TxMdIwfMapRequestMsgByOpcode	Number of MAP request messages with Op Code "X" sent to SS7 network	5 min
TxMdIwfMapResponseMsgByOpcode	Number of MAP response messages with Op Code "X" sent to SS7 network	5 min

RxMdIwfMapRequestMsgByOpcode

Measurement Group	MD-IWF SS7 Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by MAP Op Code)
Description	The number of MAP request messages with Op Code "X" received from SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a MAP request message from the SS7 network
Measurement Scope	Site

Recovery

No action required.

RxMdIwfMapResponseMsgByOpcode

Measurement Group	MD-IWF SS7 Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by MAP Op Code)
Description	The number of MAP response messages with Op Code "X" received from SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a MAP response message from the SS7 network
Measurement Scope	Site

Recovery

No action required.

TxMdIwfMapRequestMsgByOpcode

Measurement Group	MD-IWF SS7 Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by MAP Op Code)
Description	The number of MAP request messages with Op Code "X" received from SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a MAP request message from the SS7 network
Measurement Scope	Site

Recovery

No action required.

TxMdIwfMapResponseMsgByOpcode

Measurement Group	MD-IWF SS7 Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by MAP Op Code)
Description	The number of MAP response messages with Op Code "X" received from SS7 network.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a MAP response message from the SS7 network
Measurement Scope	Site

Recovery

No action required.

MD-IWF Diam Performance Measurements

The MD-IWF Diam Performance measurement report contains measurements providing performance that is specific to the MAP-Diameter IWF Application running on a SS7-MP.

Table 58: MD-IWF Diam Performance Measurements

Measurement Tag	Description	Collection Interval
RxMdIwfMapRequestMsgByOpcode	Number of MAP request messages with Op Code "X" received from SS7 network	5 min
RxMdIwfMapResponseMsgByOpcode	Number of MAP response messages with Op Code "X" received from SS7 network	5 min
TxMdIwfMapRequestMsgByOpcode	Number of MAP request messages with Op Code "X" sent to SS7 network	5 min
TxMdIwfMapResponseMsgByOpcode	Number of MAP response messages with Op Code "X" sent to SS7 network	5 min

RxMdIwfDiamRequestMsgByCommandCode

Measurement Group	MD-IWF Diam Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Command Code ID)
Description	The number of Diameter Request messages with Command Code "X" received from DA-MP.

Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a Diameter Request message from a DA-MP.
Measurement Scope	Site

Recovery

No action required.

RxMdIwfDiamAnswerMsgByCommandCode

Measurement Group	MD-IWF Diam Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Command Code ID)
Description	The number of Diameter Request messages with Command Code "X" received from DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF receives a Diameter Request message from a DA-MP.
Measurement Scope	Site

Recovery

No action required.

TxMdIwfDiamRequestMsgByCommandCode

Measurement Group	MD-IWF Diam Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Command Code ID)
Description	The number of Diameter Request messages with Command Code "X" sent to DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a Diameter Request message to a DA-MP.
Measurement Scope	Site

Recovery

No action required.

TxMdIwfDiamAnswerMsgByCommandCode

Measurement Group	MD-IWF Diam Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Command Code ID)
Description	The number of Diameter Answer messages with Command Code "X" sent to DA-MP.
Collection Interval	5 min
Peg Condition	Each time MD-IWF sends a Diameter Answer message to a DA-MP.
Measurement Scope	

Recovery

No action required.

Message Copy measurements

The Diameter Application Server (DAS) measurements reflect the Message Copy performance. These measurements allow the user to monitor the amount of traffic being copied and the percentage of times that messages were successfully (or unsuccessfully) copied. Measurements such as the following are included in this group:

- Number of messages being copied
- Number of errors in transmitting those copies (i.e., retransmits)
- Number of times a copy transaction failed
- Tx and Message Copy queue utilization

Table 59: Message Copy Measurement Report Fields

Measurement Tag	Description	Collection Interval
DASCopyAnswerRx	Total number of DAS Copy Answers received.	5 min
DASCopyDiscarded	Total number of Message Copy failures because of any error (no Answer received, the result code in the Answer didn't match provisioning).	5 min
DASCopyFailureMCCSNotProvisioned	Total amount of DAS Copy failures due to the copied message not finding a provisioned MCCS.	5 min
DASCopyFailureMPCong	Total number of DAS Copy Failures because the MP was congested.	5 min
DASCopyFailurePeerApplIdUnsup	Total amount of DAS Copy Failures because the Diameter Application Layer has specified a route list with	5 min

Measurement Tag	Description	Collection Interval
	no peer for the application ID in the message.	
DASCopyFailureRLNotProv	Total number of DAS Copy Failures because the route list is not provisioned.	5 min
DASCopyFailureSizeExceeded	Total amount of DAS Copy failures due to the copied message size configured for the system.	5 min
DASCopyRetransmits	Total number of DAS Copy retransmits.	5 min
DASCopyRetransmitsExceeded	Total number of times the DAS Copy retransmits exceeded the configured max number of retransmits.	5 min
DASCopyTx	Total number of DAS Copies forwarded.	5 min
DASCopyValidAnswer	Total number of DAS Copy transactions completed (a Copy Pending Transaction has been paired with a qualified Answer from the DAS peer).	5 min
TxMsgCopyQueueAve	Average Message Copy Queue utilization (0-100%) measured during the collection interval.	5 min
TxMsgCopyQueueFullDiscard	Total number of DAS Request messages discarded because the Message Copy queue was full.	5 min
TxMsgCopyQueuePeak	Peak Message Copy Queue utilization (0-100%) measured during the collection interval.	5 min

DASCopyAnswerRx

Measurement Group DAS

Measurement Type Simple

Measurement Dimension Single

Description The total number of DAS Copy Answers received.

Collection Interval 5 min

Peg Condition This measurement is incremented each time an Answer response is received from a DAS peer.

Measurement Scope	Server Group

Recovery

No action required.

This measurement is an indication of the Message Copy response traffic load being processed by the MP.

DASCopyDiscarded

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total number of Message Copy failures because of any error (no Answer received, the result code in the Answer didn't match provisioning).
Collection Interval	5 min
Peg Condition	This measurement is incremented each time a DAS Copy fails for any reason. Some failure reasons include (but are not limited to): no answer from peer, Application ID not supported at the peer, result code in the Answer incorrect/doesn't match provisioning.
Measurement Scope	Server Group

Recovery

1. Verify proper routing to the intended DAS peer is configured and in service (route list is properly configured), Diameter application is selecting intended route list.
2. Verify intended DAS peer is properly configured to receive the intended traffic and traffic load.
3. Verify no network issues exist between the MP and intended DAS peer.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance.

DASCopyFailureMCCSNotProvisioned

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total amount of DAS Copy failures due to the copied message not finding a provisioned MCCS.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the Copy Pending Transaction is discarded because the original message does not contain a valid MCCS, thus causing the copy action to fail.

Measurement Scope	Server Group

Recovery

1. Verify the MCCS configured with the trigger points and ensure proper provisioning.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

DASCopyFailureMPCong

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total number of DAS Copy Failures because the MP was congested.
Collection Interval	5 min
Peg Condition	When the MP declares congestion (declared CL1-CL3), the Message Copy function is disabled. Original messages marked for copy and held as a Pending Transactions are not copied and increment this measurement. If the Copy has been sent to the DAS peer, the Copy transaction will be allowed to complete. If the Copy transaction fails, another measurement will be incremented. Either the MP is receiving traffic in excess of its rated capacity or the intended DAS peer is not responding in a timely fashion.
Measurement Scope	Server Group

Recovery

1. Reduce traffic being received by the MP.
2. Verify there are no network issues between the MP and the intended DAS peer.
3. Ensure the intended DAS peer has sufficient capacity to process the traffic being directed to it by the MP
4. It is recommended to contact *My Oracle Support (MOS)* for assistance.

DASCopyFailurePeerApplIdUnsup

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total amount of DAS Copy Failures because the Diameter Application Layer has specified a route list with no peer for the application ID in the message.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the Copy Pending Transaction is discarded because a Diameter Request has been marked for copy by the application, but no connection in the

	provided Route List supports the Application ID in the request, causing the copy action to fail.
Measurement Scope	Server Group

Recovery

1. Verify the route list provisioning points to the intended DAS peer, and the intended DAS peer is responding with the desired Application ID.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

DASCopyFailureSizeExceeded

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total amount of DAS Copy failures due to the copied message size exceeding the maximum message size configured for the system.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the Copy Pending Transaction is discarded because a the message being copied to the DAS exceeded the system set maximum message size, thus causing the copy action to fail.
Measurement Scope	Server Group

Recovery

1. Verify the maximum message size set system wide is sufficient for handling the messages being processed.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance.

DASCopyFailureRLNotProv

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total number of DAS Copy Failures because the route list is not provisioned.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the Copy Pending Transaction fails because the indicated route list contained in the Diameter request does not match what has been provisioned as a system option or other provisioned route lists.
Measurement Scope	Server Group

Recovery

1. Review local provisioning that connections to intended DAS peer server(s) are in service and that no network issues exist in the path(s) to intended DAS peer server(s).
2. Review DAS peer provisioning to insure proper configuration.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance.

DASCopyRetransmits

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total number of DAS Copy retransmits.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time any Copied Message is retransmitted to a DAS peer because a qualified Diameter Answer response has not been received within the Pending Answer Timer's timeout value to complete the pending transaction.
Measurement Scope	Server Group

Recovery

1. Verify proper routing to the intended DAS peer is configured and in service (route list is properly configured), Diameter application is selecting intended route list.
2. Verify intended DAS peer is properly configured to receive the intended traffic and traffic load.
3. Verify no network issues exist between the MP and intended DAS peer.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance.

DASCopyRetransmitsExceeded

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total number of times the DAS Copy retransmits exceeded the configured max number of retransmits.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time a Copy Pending Transaction is discarded because the Copied Request has been retransmitted the configured number of times without receiving an Answer response from the DAS peer.
Measurement Scope	Server Group

Recovery

1. Verify proper routing to the intended DAS peer is configured and in service (route list is properly configured), Diameter application is selecting intended route list.
2. Verify intended DAS peer is properly configured to receive the intended traffic and traffic load.
3. Verify no network issues exist between the MP and intended DAS peer.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance.

DASCopyTx

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of DAS Copies forwarded.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time a Message Copy is transmitted to a DAS peer.
Measurement Scope	Server Group

Recovery

No action required.

This measurement is an indication of the Message Copy traffic load being processed by the MP.

DASCopyValidAnswer

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of DAS Copy transactions completed (a Copy Pending Transaction has been paired with a qualified Answer from the DAS peer).
Collection Interval	5 min
Peg Condition	This measurement is incremented each time a Copy Pending Transaction is completed because a Diameter Copy Pending Transaction has been paired with a qualified Answer received from a DAS peer, completing the transaction.
Measurement Scope	Server Group

Recovery

1. Verify proper routing to the intended DAS peer is selected and in service.
2. desired answer result code is provisioned in the **Diameter** > **System Options**.
3. desired DAS peer is configured to return the answer result code provisioned in the **Diameter** > **System Options**.

4. It is recommended to contact *My Oracle Support (MOS)* for assistance.

TxMsgCopyQueueAve

Measurement Group	DAS
Measurement Type	Average
Measurement Dimension	Single
Description	The average Message Copy Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a new Message Copy SysMetric sample is collected, then divided by the number of samples collected in the collection period.
Measurement Scope	Server Group

Recovery

No action required.

This is a diagnostic indicator of the amount of traffic load being processed by the Message Copy feature.

TxMsgCopyQueueFullDiscard

Measurement Group	DAS
Measurement Type	Simple
Measurement Dimension	Single
Description	Total number of DAS Request messages discarded because the Message Copy queue was full.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time a DAS Request is discarded because the Message Copy Tx queue was full, thus preventing a new DAS Request from being queued for transmit.
Measurement Scope	Server Group

Recovery

No action required.

This is a diagnostic indicator of the amount of traffic load being processed by the Message Copy feature.

TxMsgCopyQueuePeak

Measurement Group	DAS
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Message Copy Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	This measurement is pegged when a new Message Copy SysMetric sample is collected and the sample exceeds the previously saved peak for the collection period. When a new collection period is begun, the peak is reset to 0.
Measurement Scope	Server Group

Recovery

No action required.

This is a diagnostic indicator of the amount of traffic load being processed by the Message Copy feature.

Message Priority measurements

The Message Priority measurement group contains measurements that provide information on message priority assigned to ingress Diameter messages. Measurements such as these are included in this group.

- Totals for the number of Request messages set to priority “X” when received from a peer.
- Totals for the number of Request messages set to priority “X” as a result of PRT processing.

Table 60: Message Priority Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxMsgPri0ApplRule	Number of Request messages set to priority "0" as a result of ART processing.	5 min
RxMsgPri0PeerRule	Number of Request messages set to priority “0” as a result of PRT processing.	5 min
RxMsgPri1ApplRule	Number of Request messages set to priority "1" as a result of ART processing.	5 min
RxMsgPri1PeerRule	Number of Request messages set to priority “1” as a result of PRT processing.	5 min

Measurement Tag	Description	Collection Interval
RxMsgPri2ApplRule	Number of Request messages set to priority "2" as a result of ART processing.	5 min
RxMsgPri2PeerRule	Number of Request messages set to priority “2” as a result of PRT processing.	5 min

RxMsgPri0ApplRule

Measurement Group Message Priority

Measurement Type Simple

Measurement Dimension Single

Description Number of Request messages set to priority "0" as a result of ART processing

Collection Interval 5 min

Peg Condition Each time DRL selects an application routing rule for routing a Request message, the rule action is set to "Route to Application", and a Message Priority of "0" is assigned to the application routing rule

Measurement Scope Server Group

Recovery

No action required.

RxMsgPri0PeerRule

Measurement ID 10028

Measurement Group Message Priority

Measurement Type Simple

Measurement Dimension Single

Description Number of Request messages set to priority “0” as a result of PRT processing.

Collection Interval 5 min

Peg Condition Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to “Route to Peer”, and a Message Priority of “0” is assigned to the peer routing rule.

Measurement Scope Server Group

Recovery

No action necessary.

RxMsgPri1ApplRule

Measurement Group	Message Priority
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages set to priority "1" as a result of ART processing
Collection Interval	5 min
Peg Condition	Each time DRL selects an application routing rule for routing a Request message, the rule action is set to "Route to Application", and a Message Priority of "1" is assigned to the application routing rule
Measurement Scope	Server Group

Recovery

No action required.

RxMsgPri1PeerRule

Measurement ID	10029
Measurement Group	Message Priority
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages set to priority “1” as a result of PRT processing.
Collection Interval	5 min
Peg Condition	Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to “Route to Peer”, and a Message Priority of “1” is assigned to the peer routing rule.
Measurement Scope	Server Group

Recovery

No action necessary.

RxMsgPri2ApplRule

Measurement Group	Message Priority
Measurement Type	Simple
Measurement Dimension	Single

Description	Number of Request messages set to priority "2" as a result of ART processing
Collection Interval	5 min
Peg Condition	Each time DRL selects an application routing rule for routing a Request message, the rule action is set to "Route to Application", and a Message Priority of "2" is assigned to the application routing rule
Measurement Scope	Server Group

Recovery

No action required.

RxMsgPri2PeerRule

Measurement ID	10033
Measurement Group	Message Priority
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Request messages set to priority “2” as a result of PRT processing.
Collection Interval	5 min
Peg Condition	Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to “Route to Peer”, and a Message Priority of “2” is assigned to the peer routing rule.
Measurement Scope	Server Group

Recovery

No action necessary.

Message Processor (MP) Performance measurements

The MP Performance measurement report contains measurements that provide performance information for an MP server.

Table 61: MP Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvLongTimeoutPtrPoolAvg	The average Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval.	5 min

Measurement Tag	Description	Collection Interval
EvLongTimeoutPtrPoolPeak	The peak Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
EvMpCongestionLevel1Entered	The number of times that the local DA-MP entered CPU congestion level 1.	5 min
EvMpCongestionLevel2Entered	The number of times that the local DA-MP entered CPU congestion level 2.	5 min
EvMpCongestionLevel3Entered	The number of times that the local DA-MP entered CPU congestion level 3.	5 min
EvPtrListAvg	The average Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
EvPtrListPeak	The peak Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
MpEvRadiusRoutedMsgs	The number of ingress RADIUS messages processed by DRL, including Rerouting and Message Copy.	5 min
RxAnswerMsgQueueAvg	The average Answer Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxAnswerMsgQueuePeak	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxRequestMsgQueueAvg	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxRequestMsgQueuePeak	The peak Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
TmMpCongestionLevel1	The total time (in milliseconds) the local DA-MP was in CPU congestion level 1. This value will appear as an aggregate value retrieved from all DA-MPs in a Network Element.	5 min
TmMpCongestionLevel2	The total time (in milliseconds) the local DA-MP was in CPU congestion level 2. This value will appear as an aggregate value retrieved from all DA-MPs in a Network Element.	5 min
TmMpCongestionLevel3	The total time (in milliseconds) the local DA-MP was in CPU congestion level 3. This value will appear as an aggregate value retrieved from all DA-MPs in a Network Element.	5 min
TxRerouteQueueAvg	The average Reroute Queue utilization (0-100%) measured during the collection interval.	5 min
TxRerouteQueuePeak	The peak Reroute Queue utilization (0-100%) measured during the collection interval.	5 min

EvLongTimeoutPtrPoolAvg

Measurement ID	10295
Measurement Group	MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Diameter Long Timeout PTR Buffer Pool utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP, then a Diameter problem may exist that is causing excessive Long Timeout traffic to be delivered to the MP. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvLongTimeoutPtrPoolPeak

Measurement ID	10294
Measurement Group	MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval. A Long Timeout PTR is allocated for each Request message with a Pending Answer Timer value greater than 10 seconds that is forwarded to an upstream peer and is de-allocated when an Answer response is received and routed to a downstream peer. This measurement is useful for evaluating whether excessive traffic levels are being assigned to the Long Timeout pool. Assignment of traffic to this pool should be limited to Requests that are expected to have long response times.
Collection Interval	5 min

Peg Condition	The maximum Diameter Long Timeout PTR Buffer Pool utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP, then a Diameter problem may exist that is causing excessive Long Timeout traffic to be delivered to the MP. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvMpCongestionLevel1Entered

Measurement Group	MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times that the local DA-MP entered CPU congestion level 1.
Collection Interval	5 min
Peg Condition	Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" or asserted with severity "Info" to asserted with severity "Minor".
Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. DA-MP server status can be monitored from **Main Menu** > **Status & Manage** > **Server Status**.
2. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log be examined from **Main Menu** > **Status & Manage** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvMpCongestionLevel2Entered

Measurement Group	MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times that the local DA-MP entered CPU congestion level 2.
Collection Interval	5 min
Peg Condition	Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" or asserted with severity "Info" or "Minor" to asserted with severity "Major".
Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. DA-MP server status can be monitored from **Main Menu** > **Status & Manage** > **Server Status**.
2. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log be examined from **Main Menu** > **Status & Manage** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvMpCongestionLevel3Entered

Measurement Group	MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times that the local DA-MP entered CPU congestion level 3.
Collection Interval	5 min
Peg Condition	Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" or asserted with severity "Info", "Minor", or "Major" to asserted with severity "Critical".
Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. DA-MP server status can be monitored from **Main Menu** > **Status & Manage** > **Server Status**.
2. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log be examined from **Main Menu** > **Status & Manage** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

EvPtrListAvg

Measurement Group	MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Diameter PTR Buffer Pool utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the ingress message rate and/or Diameter process CPU utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvPtrListPeak

Measurement Group	MP Performance
Measurement Type	Max
Measurement Dimension	Single

Description	The peak Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval. A PTR is allocated for each Request message that is forwarded to an upstream peer and is de-allocated when an Answer response is received and routed to a downstream peer. This measurement is useful for evaluating whether persistent network or upstream server problems exist. In general, PTR buffers are engineered to match the processing capacity of the MP. If network or upstream server problems exist, delaying pending transactions in the MP, then PTRs (and associated messages/PDUs) will sit in internal Diameter queues.
Collection Interval	5 min
Peg Condition	The maximum Diameter PTR Buffer Pool utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the ingress message rate and/or Diameter process CPU utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

MpEvRadiusRoutedMsgs

Measurement Group	MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress RADIUS messages processed by DRL, including Rerouting and Message Copy.
Collection Interval	5 min
Peg Condition	This measurement should be incremented as per the following conditions. • Ingress RADIUS Request processing resulting in a Request being routed upstream (with or without local DSR application processing of the Request) • Ingress RADIUS Response processing resulting in forwarding of Answer/Response downstream (with or without local DSR application processing of the Response) • Ingress Request processing resulting in Answer message sent by DSR to originator (with or without local DSR application processing of the Request)

- Ingress RADIUS Request discarded due to validation error or overload
- Ingress RADIUS Response discarded due to validation error
- Initial copy and transmit of a RADIUS Request to a DAS
- Ingress RADIUS Response triggering reroute of the pending Request message (including Answers from DAS for copied RADIUS Requests)
- RADIUS Request reroute due to connection failure or Answer/Response timeout (including reroute of copied Requests to DAS for same reasons)
- Ingress Answer from a DAS terminated by DSR due to RADIUS Request copy completion or termination

Note: This is the functional equivalent to *RoutingMsgs* but for ingress RADIUS (only) messages. Measurement *RoutingMsgs* measures all ingress equivalent messages (Diameter and RADIUS).

Measurement Scope Network

Recovery

No action required.

RxAnswerMsgQueueAvg

Measurement Group	MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Answer Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Answer Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxAnswerMsgQueuePeak

Measurement Group	MP Performance
Measurement Type	Max
Measurement Dimension	Single

Description	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Answer Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxRequestMsgQueueAvg

Measurement Group	MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Request Message Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxRequestMsgQueuePeak

Measurement Group	MP Performance
Measurement Type	Max
Measurement Dimension	Single

Description	The peak Request Message Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Request Message Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmMpCongestionLevel1

Measurement Group	MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total time (in milliseconds) the local DA-MP was in CPU congestion level 1. This value will appear as an aggregate value retrieved from all DA-MPs in a Network Element.
Collection Interval	5 min
Peg Condition	The "time interval" starts when one of the following conditions occur: • A new "collection interval" for the measurement begins and Alarm 2220 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Minor". • Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity "Minor" (onset of local DA-MP CPU congestion level 1 or abatement of local DA-MP CPU congestion levels 2 or 3). The "time interval" stops when one of the following conditions occur: • The "collection interval" for the measurement ends and Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Minor". • Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is no longer asserted with severity "Minor" (abatement of local DA-MP CPU congestion level 1 or onset of local DA-MP CPU congestion levels 2 or 3).

When the "time interval" completes, the time measured is added to the measurement value.

Measurement Scope Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. DA-MP server status can be monitored from **Main Menu** > **Status & Manage** > **Server Status**.
2. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log be examined from **Main Menu** > **Status & Manage** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TmMpCongestionLevel2

Measurement Group MP Performance

Measurement Type Simple

Measurement Dimension Single

Description The total time (in milliseconds) the local DA-MP was in CPU congestion level 2. This value will appear as an aggregate value retrieved from all DA-MPs in a Network Element.

Collection Interval 5 min

Peg Condition The "time interval" starts when one of the following conditions occur:

- A new "collection interval" for the measurement begins and Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Major".
- Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity "Major" (onset of local DA-MP CPU congestion level 2 or abatement of local DA-MP CPU congestion levels 3).

The "time interval" stops when one of the following conditions occur:

- The "collection interval" for the measurement ends and Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Major".
- Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is no longer asserted with severity

"Major" (abatement of local DA-MP CPU congestion level 2 or onset of local DA-MP CPU congestion levels 3).

When the "time interval" completes, the time measured is added to the measurement value.

Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. DA-MP server status can be monitored from **Main Menu** > **Status & Manage** > **Server Status**.
2. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log be examined from **Main Menu** > **Status & Manage** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TmMpCongestionLevel3

Measurement Group	MP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total time (in milliseconds) the local DA-MP was in CPU congestion level 3. This value will appear as an aggregate value retrieved from all DA-MPs in a Network Element.
Collection Interval	5 min
Peg Condition	The "time interval" starts when one of the following conditions occur: • A new "collection interval" for the measurement begins and Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Critical". • Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity "Critical" (onset of local DA-MP CPU congestion level 3). The "time interval" stops when one of the following conditions occur: • The "collection interval" for the measurement ends and Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Critical".

- Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is no longer asserted with severity "Critical" (abatement of local DA-MP CPU congestion level 3).

When the "time interval" completes, the time measured is added to the measurement value.

Measurement Scope Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. DA-MP server status can be monitored from **Main Menu** > **Status & Manage** > **Server Status**.
2. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from **Main Menu** > **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log be examined from **Main Menu** > **Status & Manage** > **Alarms & Events**.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxRerouteQueueAvg

Measurement Group	MP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Reroute Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all Reroute Queue utilization samples taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. An excessive amount of Request message rerouting may have been triggered by either connection failures or Answer timeouts. The status of connections should be examined from the **Diameter** > **Maintenance** > **Connections** page.
2. If no additional congestion alarms are asserted, the routing answer task may be experiencing a problem, preventing it from processing messages from its Reroute Queue. The alarm log should be examined using the **Alarms & Events** page.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TxRerouteQueuePeak

Measurement Group	MP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Reroute Queue utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum Reroute Queue utilization sample taken during the collection interval.
Measurement Scope	Server Group

Recovery

1. An excessive amount of Request message rerouting may have been triggered by either connection failures or Answer timeouts. The status of connections should be examined from the **Diameter** > **Maintenance** > **Connections** page.
2. If no additional congestion alarms are asserted, the routing answer task may be experiencing a problem, preventing it from processing messages from its Reroute Queue. The alarm log should be examined using the **Alarms & Events** page.
3. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

OAM.ALARM measurements

Table 62: OAM Alarm Measurements

Measurement Tag	Description	Collection Interval
Alarm.Crit	The number of critical alarms.	5 minutes
Alarm.Major	The number of major alarms.	5 minutes
Alarm.Minor	The number of minor alarms	5 minutes
Alarm.State	The alarm state.	5 minutes

OAM.SYSTEM measurements

Table 63: OAM System Measurements

Measurement Tag	Description	Collection Interval
System.CPU_UtilPct_Average	The average CPU usage from 0 to 100% (100% indicates that all cores are completely busy).	5 minutes
System.CPU_UtilPct_Peak	The peak CPU usage from 0 to 100% (100% indicates that all cores are completely busy).	5 minutes
System.Disk_UtilPct_Average	The average disk usage for the partition on which the COMCOL database resides.	5 minutes
System.Disk_UtilPct_Peak	The peak disk usage for the partition on which the COMCOL database resides.	5 minutes
System.RAM_UtilPct_Average	The average committed RAM usage as a percentage of the total physical RAM. This measurement is based on the Committed_AS measurement from Linux/proc/meminfo. This measurement can exceed 100% if the kernel has committed more resources than provided by physical RAM, in which case, swapping will occur.	5 minutes
System.RAM_UtilPct_Peak	The peak committed RAM usage as a percentage of the total physical RAM. This measurement is based on the Committed_AS measurement from Linux/proc/meminfo. This measurement can exceed 100% if the kernel has committed more resources than provided by physical RAM, in which case, swapping will occur.	5 minutes
System.ShMem_UtilPct_Average	The average shared memory usage as a percentage of the limit configured by shl.set.	5 minutes
System.ShMem_UtilPct_Peak	The peak shared memory usage as a percentage of the limit configured by shl.set.	5 minutes
System.SwapIn_Rate_Average	The average number of memory pages swapped in to memory from disk per second.	5 minutes

Measurement Tag	Description	Collection Interval
System.SwapIn_Rate_Peak	The peak number of memory pages swapped in to memory from disk per second.	5 minutes
System.SwapOut_Rate_Average	The average number of memory pages swapped out of memory from disk per second.	5 minutes
System.SwapOut_Rate_Peak	The peak number of memory pages swapped out of memory from disk per second.	5 minutes
System.Swap_UtilPct_Average	The average usage of swap space as a percentage of the total configured swap space.	5 minutes
System.Swap_UtilPct_Peak	The peak usage of swap space as a percentage of the total configured swap space.	5 minutes
System.CPU_CoreUtilPct_Average	The average CPU usage for each core. On an eight-core system, there will be eight sub-metrics showing the utilization of each core.	5 minutes
System.CPU_CoreUtilPct_Peak	The peak CPU usage for each core. On an eight-core system, there will be eight sub-metrics showing the utilization of each core.	5 minutes

OC-DRA Diameter Usage measurements

The OC-DRA Diameter Usage measurement report contains measurements that provide performance information that is specific to the OC-DRA Diameter protocol.

Table 64: OC-DRA Diameter Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxOcdraMsgRateAvg	Average OC-DRA Ingress Message Processing Rate.	5 min
RxOcdraMsgRatePeak	Peak OC-DRA Ingress Message Processing Rate.	5 min
RxGyRoMsgsReceivedPerCmd	Number of Gy/Ro Diameter Credit Control Application messages (including requests and answers) received by OC-DRA.	5 min

Measurement Tag	Description	Collection Interval
RxGyRoReqRelayedPerCmd	Number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA.	5 min
RxGyRoAnsRelayedPerCmd	Number of Gy/Ro Diameter Credit Control Application Answer messages successfully relayed by OC-DRA.	5 min
RxGyRoAns2xxxFromPeerPerCmd	Number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA that received an Answers from the peer with a 2xxx (Success) Result-Code value.	5 min
TmGyRoSessionDuration	Histogram of normally terminated Gy/Ro session durations.	5 min
TmGyRoSessionRefresh	Histogram of Gy/Ro session refresh durations.	5 min

RxOcdraMsgRateAvg

Measurement Group OC-DRA Diameter Usage

Measurement Type Average

Measurement Dimension Single

Description Average OC-DRA Ingress Message Processing Rate

Collection Interval 5 min

Peg Condition The average of all OC-DRA Ingress Message Rate KPI samples taken during the collection interval.

Measurement Scope All

Recovery

1. Display and monitor the DSR Application message rate by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter** > **Status & Manage** > **KPIs**.

   If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxOcdraMsgRatePeak

Measurement Group OC-DRA Diameter Usage

Measurement Type	Max
Measurement Dimension	Single
Description	Peak OC-DRA Ingress Message Processing Rate
Collection Interval	5 min
Peg Condition	The maximum of all OC-DRA Ingress Message Rate KPI samples taken during the collection interval.
Measurement Scope	All

Recovery

1. Display and monitor the DSR Application message rate by selecting **Diameter** > **Maintenance** > **Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter** > **Configuration** > **Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter** > **Status & Manage** > **KPIs**.

   If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxGyRoMsgsReceivedPerCmd

Measurement Group	OC-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, CCA-I/U/T/E, RAR, RAA, UNK-REQ, UNK-ANS and "Total")
Description	The number of Gy/Ro Diameter Credit Control Application messages (including requests and answers) received by OC-DRA.
Collection Interval	5 min
Peg Condition	Each time OC-DRA received a Gy/Ro Diameter Credit Control Application message (i.e. CCR/CCA and RAR/RAA) for Online Charging message processing. This measurement is the summation of measurements *RxGyRoReqRelayedPerCmd* and *RxGyRoReqFailedToRelayPerCmd* for Diameter Requests. This measurement is the summation of measurements *RxGyRoReqRelayedPerCmd* and *RxGyRoAnsDiscardedDrlQueueFullPerCmd*. **Note:** Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be th exact sum of the measurements listed above. **Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".
Measurement Scope	All

Recovery

No action required.

RxGyRoReqRelayedPerCmd

Measurement Group	OC-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and “Total”)
Description	The number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives an Answer response (from the Peer) to a Gy/Ro Diameter Credit Control Application Request message successfully en-queued on DRL’s Request Queue for Request message routing. This measurement is the summation of measurements *RxGyRoAns2xxxFromPeerPerCmd* and *RxGyRoAnsNon2xxxFromPeerPerCmd*. **Note:** Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be the exact sum of the measurements listed above. **Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total". **Note:** This measurement is not pegged when OC-DRA receives a locally generated Answer response due to DRL unsuccessfully relaying the request to a peer (e.g. an unavailable peer or invalid route specifications).
Measurement Scope	All

Recovery

No action required.

RxGyRoAnsRelayedPerCmd

Measurement Group	OC-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and “Total”)
Description	The number of Gy/Ro Diameter Credit Control Application Answer messages successfully relayed by OC-DRA.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives a Gy/Ro Diameter Credit Control Application Answer message and successfully en-queues it onto DRL’s Answer Queue for Answer message routing. **Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".

Measurement Scope	All

Recovery

No action required.

RxGyRoAns2xxxFromPeerPerCmd

Measurement Group	OC-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and “Total”)
Description	The number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA that received Answers from the peer with a 2xxx (Success) Result-Code value.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives an Answer from the peer with a successful Result-Code AVP (one containing a value in the range of 2000 – 2999). **Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".
Measurement Scope	All

Recovery

No action required.

TmGyRoSessionDuration

Measurement Group	OC-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of normally terminated Gy/Ro session durations.
Collection Interval	5 min
Peg Condition	When a Gy/Ro session record is removed, the appropriate histogram instance shall be incremented by 1. **Note:** Binding-independent session records are stored only if session state applies to the session.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gy/Ro session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Note: This measurement applies only to sessions for which session state is being maintained. Online Charging DRA does not maintain Gy/Ro session state unless Session State applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

TmGyRoSessionRefresh

Measurement Group	OC-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of Gy/Ro session refresh durations.
Collection Interval	5 min
Peg Condition	When a Gy/Ro session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gy/Ro sessions are refreshed during CCR-U and RAR processing.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gy/Ro session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the Gy/Ro interface is set too short, the session audit will remove the session prematurely, possibly causing signaling failures for subsequent in-session request processing needing topology hiding translations.

Note: This measurement applies only sessions for which session state is being maintained. Online Charging DRA does not maintain Gy/Ro session state unless Session State applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

OC-DRA Diameter Exception measurements

The OC-DRA Diameter Exception measurement report contains measurements that provide performance information that is specific to the OC-DRA Diameter protocol.

Table 65: OC-DRA Diameter Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxPcaTransactionsRejected	Number of transactions rejected by Policy and Charging DSR Application.	5 min
RxGyRoReqFailedToRelayPerCmd	Number of Gy/Ro Diameter Credit Control Application Request messages OC-DRA failed to relay.	5 min
RxGyRoAnsNon2xxxFromPeerPerCmd	Number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA that received an Answer from the peer with a non-2xxx (Non-successful) Result-Code value.	5 min
RxGyRoAnsDiscardedDrl QueueFullPerCmd	Number of Gy/Ro Diameter Credit Control Application Answer messages discarded by OC-DRA due to DRL's Answer queue being full.	5 min
TxGyRoAnsGenByDrlPerCmd	Number of Gy/Ro Diameter Credit Control Application Answer messages received by OC-DRA that were generated by DRL.	5 min
TxGyRoAnsGenByOcdraPerCmd	Number of Diameter Answer messages generated by OC-DRA after encountering a failure and abandoning processing of Gy/Ro Diameter Credit Control Application Request messages.	5 min
TxGyRoAnsGenPerErrCode	Number of Gy/Ro Diameter Credit Control Application Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoCcrInitAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to INITIAL_REQUEST (CCR-I) that	5 min

Measurement Tag	Description	Collection Interval
	OC-DRA abandoned processing due to a failure and generated an Answer response.	
TxGyRoCcrUpdateAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to UPDATE_REQUEST (CCR-U) that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoCcrTermAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to TERMINATION_REQUEST (CCR-T) that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoCcrEventAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to EVENT_REQUEST (CCR-E) that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoRarAnsGenPerErrCode	Number of Gy/Ro Re-Auth-Request (RAA) messages that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoUnkCmdAnsGenPerErrCode	Number of unsupported Diameter Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxPcaAnsGenPerErrCode	Number of Diameter Request messages that PCA abandoned processing due to a failure and generated an Answer response.	5 min
RxPcaAnsRelayedUnsupportedAppId	Number of Diameter Answer messages relayed by PCA containing an Auth-Application-Id AVP value that is not supported.	5 min
RxOcdraReqNoCcRequestType	Number of Gy/Ro Credit-Control-Request messages	5 min

Measurement Tag	Description	Collection Interval
	received by OC-DRA that did not contain the CC-Request-Type AVP.	
RxOcdraUnsupportedCcRequestType	Number of Gy/Ro Credit-Control-Request/Answer messages received by OC-DRA that contained an unsupported CC-Request-Type AVP value.	5 min
RxOcdraStackEventDiscardedCaFailure	Number of stack events discarded by ComAgent due to ComAgent failures.	5 min
RxOcdraStackEventDiscardedUnsupported	Number of SBR Stack Events discarded by OC-DRA that contained an unsupported Event Type value.	5 min
RxGyRoCcrInitNoMsisdn	Number of Gy/Ro CCR-I messages that OC-DRA failed to extract the MSISDN from the Subscription-Id Grouped AVP or the User-Name AVP.	5 min
RxGyRoCcrInitNoDestHost MultOcsPoolsMode	Number of Gy/Ro CCR-I messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.	5 min
RxGyRoCcrEventNoDestHost MultOcsPoolsMode	Number of Gy/Ro CCR-E messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.	5 min
RxGyRoInSessionReqNoDestHost	Number of in-session Gy/Ro Diameter Credit Control Application Request messages received by OC-DRA without a Destination-Host.	5 min
RxOcdraSessionUnkToPeer	Number of Gy/Ro Diameter Answer messages received by OC-DRA from the peer with a Result-Code value 5002 (DIAMETER_UNKNOWN_SESSION_ID).	5 min
RxOcdraAnsweringOcsNotConfigured	Number of answering OCS servers not configured locally.	5 min

RxPcaTransactionsRejected

Measurement Group	P-DRA Diameter Exception, OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of transactions rejected by Policy and Charging DSR Application.
Collection Interval	5 min
Peg Condition	Each time the Policy and Charging Application (PCA) initiates an Answer response with a non-successful Result-Code (one containing a non-2xxx value) or discards an ingress Request message for any of the following reasons: • OC-DRA is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Request discarded during Congestion • Diameter Message Routing failure due to DRL's Request Queue Full • Communication Agent Error (i.e., Queue Full) • Unexpected SBR Error • Online Charging Session not found when required for routing **Note:** This measurement is only pegged once for an ingress Request message.
Measurement Scope	Server Group

Recovery

1. This measurement gives an indication if any Gy/Ro Diameter Credit Control Application Request messages were NOT successfully relayed by OC-DRA. OC-DRA can fail to relay Gy/Ro Diameter Credit Control Application Request messages for various reasons as stated above for "Peg Condition".
2. This measurement is the summation of the following measurements which should be inspected within the same collection interval to further determine the specific cause of failure:
   - *TxGyRoAnsGenByOcdraPerCmd*
   - *TxGyRoAnsGenByDrlPerCmd*
   - *RxGyRoReqDiscardedCongestionPerCmd*

   Note: Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be the exact sum of the measurements listed above.

RxGyRoReqFailedToRelayPerCmd

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple

Measurement Dimension	Arrayed (by Diameter Request Command Abbreviation, i.e., CCR-I/U/T/E, RAR, UNK-REQ and "Total")
Description	The number of Gy/Ro Diameter Credit Control Application Request messages OC-DRA failed to relay.
Collection Interval	5 min
Peg Condition	Each time the Policy and Charging DSR Application (PCA) initiates an Answer response with a non-successful Result-Code (one containing a non-2xxx value) or discards an ingress Request message for any of the following reasons: • OC-DRA functionality is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Request discarded during Congestion • Diameter Message Routing failure due to DRL's Request Queue Full • Communication Agent Error (i.e., Queue Full) • Unexpected SBR Error • Online Charging Session not found when required for routing • Diameter Routing Layer failed to relay the Diameter Request (e.g., an unavailable peer or invalid route specification) **Note:** This measurement is only pegged once for an ingress Request message.
Measurement Scope	Server Group

Recovery

1. This measurement gives an indication if any Gy/Ro Diameter Credit Control Application Request messages were NOT successfully relayed by OC-DRA. OC-DRA can fail to relay Gy/Ro Diameter Credit Control Application Request messages for various reasons as stated above for "Peg Condition".
2. This measurement is the summation of the following measurements which should be inspected within the same collection interval to further determine the specific cause of failure:
   - *TxGyRoAnsGenByOcdraPerCmd*
   - *TxGyRoAnsGenByDrlPerCmd*
   - *RxGyRoReqDiscardedCongestionPerCmd*

   Note: Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be the exact sum of the measurements listed above.

RxGyRoAnsNon2xxxFromPeerPerCmd

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR and "Total")

Description	The number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA that received an Answer from the peer with a non-2xxx (Non-successful) Result-Code value.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives an Answer from the peer with a non-successful Result-Code AVP (one containing a value that is not in the range of 2000 – 2999). **Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".
Measurement Scope	All

Recovery

No action required.

RxGyRoAnsDiscardedDrlQueueFullPerCmd

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ, and “Total”)
Description	The number of Gy/Ro Diameter Credit Control Application Answer messages discarded by OC-DRA due to DRL’s Answer queue being full.
Collection Interval	5 min
Peg Condition	Each time a Gy/Ro based Diameter Credit Control Application Answer message is discarded after OC-DRA failed to en-queue it on to DRL’s Answer queue for routing due to it being full. **Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total."
Measurement Scope	All

Recovery

1. This measurement indicates that overall DA-MP congestion is occurring and the need for additional processing capacity at the PCA DA-MP.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxGyRoAnsGenByDrlPerCmd

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ, and “Total”)
Description	The number of Gy/Ro Diameter Credit Control Application Answer messages received by OC-DRA that were generated by DRL.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives a Gy/Ro Diameter Credit Control Application Request message that was generated by DRL as a result of encountering a routing failure or an operator instruction (e.g., PRT rule) which requires abandoning transaction routing and sending an Answer response. **Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total."
Measurement Scope	All

Recovery

No action required.

TxGyRoAnsGenByOcdraPerCmd

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (i.e. CCR-I/U/T/E, RAR, UNK-REQ, and "Total")
Description	The number of Diameter Answer messages generated by OC-DRA after encountering a failure and abandoning processing of Gy/Ro Diameter Credit Control Application Request messages.
Collection Interval	5 min
Peg Condition	Each time OC-DRA abandons the processing of a Gy/Ro Diameter Credit Control Application Request message due to a failure and generates an Answer response. Processing failures include the following: • OC-DRA is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Message Routing failure due to DRL's Request Queue Full • Communication Agent Error (i.e., Queue Full) • Unexpected SBR Error • Online Charging Session not found when required for routing

Note: This measurement is only pegged once for an ingress Request message.

Measurement Scope All

Recovery

This measurement gives an indication of OC-DRA abandoning the processing of Gy/Ro Diameter Credit Control Application Request messages and generating Answer responses due to the various reasons stated in "Peg Condition". To determine the specific cause of failure, inspect *TxGyRoAnsGenPerErrCode* that is pegged in the same collection interval and follow its Customer Action.

TxGyRoAnsGenPerErrCode

Measurement Group OC-DRA Diameter Exception

Measurement Type Simple

Measurement Dimension Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures* and "Total")

Description The number of Gy/Ro Diameter Credit Control Application Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.

Collection Interval 5 min

Peg Condition Each time OC-DRA abandons the processing of Gy/Ro Diameter Credit Control Application request message due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

Note: This measurement is only pegged once for an ingress Request message.

Measurement Scope All

Recovery

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit Control Application Request messages are being received and rejected due to the various reasons stated in “Peg Condition”. A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of Gy/Ro Diameter Credit Control Application Request messages that OC-DRA generated a Diameter Answer with error response across the range of

3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

TxGyRoCcrInitAnsGenPerErrCode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures*)
Description	The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to INITIAL_REQUEST (CCR-I) that OC-DRA abandoned processing due to a failure and generated an Answer response.
Collection Interval	5 min
Peg Condition	Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to INITIAL_REQUEST (CCR-I) due to a failure and generates an Answer response Processing failures include the following: • OC-DRA is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Message Routing failure due to DRL's Request Queue Full • Communication Agent Error (i.e., Queue Full) • Unexpected SBR Error • Online Charging Session not found when required for routing
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to INITIATE_REQUEST (CCR-I) are being received and rejected due to the various reasons stated above for "Peg Condition". A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of Gy/Ro Diameter CCR-I messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

TxGyRoCcrUpdateAnsGenPerErrCode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures*)

Description	The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to UPDATE_REQUEST (CCR-U) that OC-DRA abandoned processing due to a failure and generated an Answer response.
Collection Interval	5 min
Peg Condition	Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to UPDATE_REQUEST (CCR-U) due to a failure and generates an Answer response. Processing failures include the following: • OC-DRA is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Message Routing failure due to DRL's Request Queue Full • Communication Agent Error (i.e., Queue Full) • Unexpected SBR Error • Online Charging Session not found when required for routing
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to UPDATE_REQUEST (CCR-U) are being received and rejected due to the various reasons stated in "Peg Condition". A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of Gy/Ro Diameter CCR-U messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

TxGyRoCcrTermAnsGenPerErrCode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures*)
Description	The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to TERMINATION_REQUEST (CCR-T) that OC-DRA abandoned processing due to a failure and generated an Answer response.
Collection Interval	5 min
Peg Condition	Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to TERMINATION_REQUEST (CCR-T) due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

Measurement Scope All

Recovery

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to TERMINATION_REQUEST (CCR-T) are being received and rejected due to the various reasons stated in "Peg Condition". A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of Gy/Ro Diameter CCR-U messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

TxGyRoCcrEventAnsGenPerErrCode

Measurement Group OC-DRA Diameter Exception

Measurement Type Simple

Measurement Dimension Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures*)

Description The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to EVENT_REQUEST (CCR-E) that OC-DRA abandoned processing due to a failure and generated an Answer response.

Collection Interval 5 min

Peg Condition Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to EVENT_REQUEST (CCR-E) due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error

Measurement Scope All

Recovery

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to EVENT_REQUEST (CCR-E) are being received and rejected due to the various reasons stated in "Peg Condition". A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of Gy/Ro Diameter CCR-E messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

TxGyRoRarAnsGenPerErrCode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures*)
Description	The number of Gy/Ro Re-Auth-Request (RAR) messages that OC-DRA abandoned processing due to a failure and generated an Answer response.
Collection Interval	5 min
Peg Condition	Each time OC-DRA abandons the processing of a Gy/Ro Re-Auth-Request (RAR) message due to a failure and generates an Error Answer response. Processing failures include the following: • OC-DRA is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Message Routing failure due to DRL's Request Queue Full • Communication Agent Error (i.e., Queue Full) • Unexpected SBR Error • Online Charging Session not found when required for routing
Measurement Scope	All

Recovery

1.
2. This is measurement represents an exception condition in which Gy/Ro Diameter Re-Auth-Request (RAR) messages are being received and rejected due to the various reasons stated in "Peg Condition". A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
3. This measurement shows the distribution of Gy/Ro Diameter RAR messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

TxGyRoUnkCmdAnsGenPerErrCode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures*)
Description	The number of unsupported Diameter Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.
Collection Interval	5 min
Peg Condition	Each time OC-DRA abandons the processing of an unsupported Request message due to a failure and generates an Error Answer response. Processing failures include the following: • OC-DRA is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Message Routing failure due to DRL's Request Queue Full
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which an unknown Diameter Request messages are being received and rejected due to the various reasons stated in “Peg Condition”. A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of unknown Diameter messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

TxPcaAnsGenPerErrCode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by 3-digit error code defined in *Policy DRA Error Resolution Procedures* and "Total")
Description	The number of Diameter Request messages that PCA abandoned processing due to a failure and generated an Answer response.
Collection Interval	5 min

Peg Condition	Each time PCA abandons the processing of a Request message due to a failure and generates an Error Answer response. Processing failures include the following: • A PCA function is Unavailable or Disabled • Diameter Protocol Error Detected **Note:** This measurement is pegged twice, once for the 3-digit error code and once for "Total."
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which Diameter Request messages are being received and rejected due to the various reasons stated in “Peg Condition”. A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of Diameter Request messages that PCA generated a Diameter Answer with error response across the range of 3-digit error codes defined in *Policy DRA Error Resolution Procedures* to determine the specific cause of failure and resolution using the 3-digit error codes.

RxPcaAnsRelayedUnsupportedAppId

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Answer messages relayed by PCA containing an Application-Id AVP value that is not supported.
Collection Interval	5 min
Peg Condition	Each time PCA receives a Diameter Answer message containing an Application-Id value that is not supported and forwards it to DRL for routing.
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which a Diameter Answer messages are being received containing an Auth-Application-Id AVP value that is not supported by the Policy and Charging DSR Application. Each Diameter Answer containing an unsupported Application-ID is sent without modification to the downstream peer that initiation the Diameter transaction. This condition causes the generation of Event 22701 Protocol Error In Diameter Answer. Refer to the *DSR Alarms and KPIs Reference* for details about Event 22701.
2. The Policy and Charging DSR Application receiving a Diameter Answer message containing an unsupported Auth-Application-Id AVP value that represents an abnormal/unexpected condition since it only requests to receive Answers for Diameter Request messages containing Auth-Application-Ids that it supports.
3. It is recommended to contact the *My Oracle Support (MOS)* for assistance if needed.

RxOcdraReqNoCcRequestType

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Gy/Ro Credit-Control-Request messages received by OC-DRA that did not contain the CC-Request-Type AVP.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives a Gy/Ro Credit-Control-Request message that does not contain the CC-Request-Type AVP.
Measurement Scope	All

Recovery

This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages are being received containing no CC-Request-Type AVP. Each Diameter Request containing a missing CC-Request-Type AVP is rejected using "CCR-Type-AVP is missing from CCR message" error condition. This condition causes the generation of Event 22700 Protocol Error In Diameter Request. Refer to the *DSR Alarms and KPIs Reference* for details about Event 22700.

RxOcdraUnsupportedCcRequestType

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Gy/Ro Credit-Control-Request/Answer messages received by OC-DRA that contained an unsupported CC-Request-Type AVP value.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives a Gy/Ro Credit-Control-Request/Answer message that contains and unsupported CC-Request-Type AVP value.
Measurement Scope	All

Recovery

This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages are being received containing an invalid CC-Request-Type AVP value. Each Diameter Request containing an invalid CC-Request-Type AVP is rejected using "Invalid AVP value in request" error condition. This condition causes the generation of Event 22700 Protocol Error In Diameter Request. Refer to the *DSR Alarms and KPIs Reference* for details about Event 22700.

RxOcdraStackEventDiscardedCaFailure

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of stack events discarded by ComAgent due to ComAgent failures.
Collection Interval	5 min
Peg Condition	Each time OC-DRA sends a stack event and it is discarded due to a ComAgent failure as indicated by the returned ComAgent Error Response Stack error code
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which ComAgent Error Response Stack events are being received indicating that ComAgent has experienced communication failure when OC-DRA sends Policy and Charging SBR Request stack events to the Session SBR. Each Policy and Charging SBR Request stack event is discarded.
2. This condition also causes Event 22704 Communication Agent Error to be generated indicating the error code of the received ComAgent Error Response Stack event. Refer to the *DSR Alarms and KPIs Reference* for details about Event 22700.
3. The following ComAgent measurements should be inspected within the same collection interval to further determine the specific reason for the stack event being discarded:

   - *CAHSTxDscrdCongSR*
   - *CAHSTxDscrdUnkwnRsrc*
   - *CAHSTxDscrdIntErrSR*

   Refer to the Recovery steps for any/all of these measurements that were pegged in the same collection interval.

4. Check Alarm 19832 ComAgent Reliable Transaction Failed in the *DSR Alarms and KPIs Reference*, as well as measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, *CAHSTxDscrdIntErrSR* for detailed error causes.

RxOcdraStackEventDiscardedUnsupported

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of SBR Stack Events discarded by OC-DRA that contained an unsupported Event Type value.
Collection Interval	5 min
Peg Condition	Each time OC-DRA discards a stack event received from the SBR that contained an unsupported Event Type value.

Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which SBR Response messages are being received containing an invalid Online Charging Event Type value. Each Diameter Request containing an invalid Online Charging Event Type value is discarded
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxGyRoCcrInitNoMsisdn

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Gy/Ro CCR-I messages that OC-DRA failed to extract the MSISDN from the Subscription-Id Grouped AVP or the User-Name AVP.
Collection Interval	5 min
Peg Condition	Each time OC-DRA fails to extract the MSISDN from a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to INITIAL_REQUEST (CCR-I) when session state is to be maintained
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which Gy/Ro CCR-I messages are being received without containing an MSISDN in the Subscription-Id Grouped AVP or User-Name AVP. Each Gy/Ro CCR-I Request not containing an MSISDN in the Subscription-Id Grouped AVP or User-Name AVP is sent without modification to the OCS.
2. If session state is stored for this transaction, the MSISDN will be stored as “Not Present”.

RxGyRoCcrInitNoDestHostMultOcsPoolMode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Gy/Ro CCR-I messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.
Collection Interval	5 min
Peg Condition	Each time a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to INITIAL_REQUEST (CCR-I) is received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.

Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which Gy/Ro CCR-I messages are being received without containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode for Regionalized Routing. Each Gy/Ro CCR-I Request message not containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode is sent without modification to the OCS.
2. When OC-DRA is configured to operate in Multiple OCS Pools Mode for Regionalize Routing, it relies on RBAR and mechanisms like Mediation to be invoked prior to PCA OC-DRA invocation to populate a Destination-Host and/or Destination-Realm AVPs for session initiation Requests (CCR-Is). The Destination-Host is used to represent a pool of OCS servers that can serve the Request. The Request is routed via the Diameter Routing Layer where the Peer Routing Table (PRT) rules will be used to route the Request to one of the OCS serverrs within the pool using priorities/weights configured in the Route List selected via the Peer Routing Table (PRT).
3. RBAR and mechanisms like Mediation should be verified to be properly configured and invoked prior to PCA invocation.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxGyRoCcrEventNoDestHostMultOcsPoolMode

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Gy/Ro CCR-E messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode
Collection Interval	5 min
Peg Condition	Each time a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to EVENT_REQUEST (CCR-E) is received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which Gy/Ro CCR-E messages are being received without containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode for Regionalized Routing. Each Gy/Ro CCR-E Request message not containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode is sent without modification to the OCS.
2. When OC-DRA is configured to operate in Multiple OCS Pools Mode for Regionalize Routing, it relies on RBAR and mechanisms like Mediation to be invoked prior to PCA OC-DRA invocation to populate a Destination-Host and/or Destination-Realm AVPs for session initiation Requests (CCR-Is). The Destination-Host is used to represent a pool of OCS servers that can serve the Request. The Request is routed via the Diameter Routing Layer where the Peer Routing Table (PRT) rules

will be used to route the Request to one of the OCS servers within the pool using priorities/weights configured in the Route List selected via the Peer Routing Table (PRT).

3. RBAR and mechanisms like Mediation should be verified to be properly configured and invoked prior to PCA invocation.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxGyRoInSessionReqNoDestHost

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of in-session Gy/Ro Diameter Credit Control Application Request messages received by OC-DRA without a Destination-Host.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives an in-session Gy/Ro Diameter Request message (i.e. CCR-U/T and RAR) that does not contain a Destination-Host.
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which in-session Gy/Ro Diameter Request messages (i.e. CCR-U/T and RAR) are being received without a Destination-Host. Session data is retrieved from the SBR for each in-session Gy/Ro Diameter Request message not containing a Destination-Host. If session data is found, a Destination-Host AVP is populated with the true server name and inserted into the Diameter Request and the Diameter Request is relayed. If session data is not found, the Diameter Request is rejected using "Session Not Found" error condition.
2. This condition may occur for any of the following reasons that require OC-DRA to be configured to store session state:
   - A client is not capable of learning the OCS server name from the CCA-I
   - The OCS server is not capable of learning the name of a client from the CCR-I
3. Verify that session state is properly configured if either client or OCS server is not capable in learning each other's hostname.

RxOcdraSessionUnkToPeer

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Gy/Ro Diameter Answer messages received by OC-DRA from the peer with a Result-Code value 5002 (DIAMETER_UNKNOWN_SESSION_ID).
Collection Interval	5 min

Peg Condition	Each time OC-DRA receives a Gy/Ro Diameter Answer message from the peer with a Result-Code value 5002 (DIAMETER_UNKNOWN_SESSION_ID).
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which Gy/Ro Diameter Answer messages are being received by OC-DRA containing a Result-Code value 5002 (DIAMETER_UNKNOWN_SESSION_ID).
2. Each Gy/Ro Diameter Answer message received containing a Result-Code value 5002 is sent without modification to the peer that originated the Diameter Request.
3. If a Gy/Ro CCA-U or RAA message is received containing a Result-Code value 5002, OC-DRA will remove the session from the Session SBR if session state applies.

RxOcdraAnsweringOcsNotConfigured

Measurement Group	OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of answering OCS servers not configured locally.
Collection Interval	5 min
Peg Condition	Each time OC-DRA receives a session initiation answer from an OCS server whose FQDN is not configured at the Policy and Charging SOAMP
Measurement Scope	All

Recovery

1. This measurement represents an exception condition in which an Online Charging session initiation response is being received from an OCS server that is not configured at the Policy and Charging SOAMP. Each Online Charging session initiation response (i.e., CCA-I) received from an unknown OCS server is relayed without modification to the downstream peer that initiated the Diameter transaction. However, session state is not stored for the Online Charging session. This condition causes Alarm 22730 Policy and Charging Configuration Error to be asserted. Refer to the *DSR Alarms and KPIs Reference* for details on Alarm 22730.
2. Determine whether the OCS server has been configured in **Policy and Charging** > **Configuration** > **Online Charging PDRA** > **OCSs** at the Policy and Charging site where Alarm 22730 has been asserted. If the OCS is not configured at the site, configure it using **Policy and Charging** > **Configuration** > **Online Charging PDRA** > **OCSs [Insert]**.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

OC-DRA Congestion Exception measurements

The OC-DRA Congestion Exception measurement report contains measurements that provide performance information that is specific to the OC-DRA Diameter protocol.

Table 66: OCP-DRA Congestion Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxGyRoReqDiscardedCongestionPerCmd	Number of Gy/Ro Diameter Credit Control Application Request messages discarded due to congestion.	5 min

RxGyRoReqDiscardedCongestionPerCmd

Measurement Group	OC-DRA Congestion Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, and "Total")
Description	The number of Gy/Ro Diameter Credit Control Application Request messages discarded due to congestion.
Collection Interval	
Peg Condition	Each time a Gy/Ro Diameter Credit Control Application Request message is discarded due to congestion. **Note:** This measurement is pegged twice, once for the 3-digit error code and once for "Total".
Measurement Scope	All

Recovery

This measurement represents an exception condition in which Gy/Ro Diameter Credit Control Application Request messages are discarded due to congestion. This condition causes Event 22707 Diameter Message Processing Failure to be generated. Refer to the *DSR Alarms and KPIs Reference* for details on Event 22707

PCA NGN-PS Exception measurements

Table 67: PCA NGN-PS Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
PcaNgnPsBindingSbrDrop	The number of NGN-PS related stack events sent to an active Binding SBR rejected.	5 min
PcaNgnPsSessionSbrDrop	The number of NGN-PS related stack events sent to an active Session SBR rejected.	5 min
RxPcaNgnPsDrop	The number of PCA ingress NGN-PS messages discarded or rejected.	5 min

PcaNgnPsBindingSbrDrop

Measurement Group	PCA NGN-PS Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	NGN-PS related stack events to be sent to an active Binding SBR that are unsuccessful because of ComAgent errors. The number of NGN-PS related stack events sent to an active Binding SBR rejected.
Collection Interval	5 min
Peg Condition	The measurement shall be pegged each an NGN-PS related stack event to be forwarded to an active binding SBR is rejected due to ComAgent errors.
Measurement Scope	All

Recovery

Check measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, *CAHSTxDscrdIntErrSR*, and event 19832 from the *Alarms and KPIs Reference* for detailed error causes.

PcaNgnPsSessionSbrDrop

Measurement Group	PCA NGN-PS Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of NGN-PS related stack events sent to an active Session SBR rejected.
Collection Interval	5 min

Peg Condition	This measurement is pegged each time an NGN-PS related stack event to be forwarded to an active session SBR is rejected due to ComAgent errors.
Measurement Scope	All

Recovery

Check measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, *CAHSTxDscrdIntErrSR*, and event 19832 from the *Alarms and KPIs Reference* for detailed error causes.

RxPcaNgnPsDrop

Measurement Group	PCA NGN-PS Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of PCA ingress NGN-PS messages discarded or rejected.
Collection Interval	5 min
Peg Condition	This measurement is pegged each time PCA discards or rejects an NGN-PS message.
Measurement Scope	All

Recovery

This measurement indicates that a DA-MP may be experiencing congestion. Additional processing capacity at the PCA DA-MP may be needed.

PCA NGN-PS Performance measurements

Table 68: PCA NGN-PS Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxPcaNgnPs	The number of PCA ingress NGN-PS messages.	5 min

RxPcaNgnPs

Measurement Group	PCA NGN-PS Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of PCA ingress NGN-PS messages.
Collection Interval	5 min

Peg Condition	This measurement is pegged each time PCA receives a Diameter message from any PCA-supported Diameter interface (Gx/Gxx, Rx, Gx-Prime, Gy/Ro) that has been assigned NGN-PS priority.
Measurement Scope	All

Recovery

No action required.

P-DRA Diameter Usage measurements

The P-DRADiameter Usage measurement report contains measurements that provide performance information that is specific to the P-DRA Diameter protocol.

Table 69: P-DRA Diameter Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
PdraGxTopoHidingApplied	Number of messages received on Gx interface on which topology hiding has been applied by P-DRA.	5 min
PdraGxpTopoHidingApplied	Number of Gx-Prime CC Request messages on which topology hiding is applied.	5 min
PdraRxTopoHidingApplied	Number of messages received on Rx interface on which topology hiding has been applied by P-DRA.	5 min
RxBindCapApn2PcrfPool	Number of times a given APN is successfully mapped to a PCRF Pool	5 min
RxBindCap2PcrfSubPool	Number of binding capable session initiation requests that were mapped to a PCRF Sub-Pool by a given PCRF Sub-Pool Selection Rule	5 min
RxBindCapPcrfPool2Prt	Number of binding capable session initiation requests that are routed using a PRT table chosen as a result of PCRF Pool or PCRF Sub-Pool mapping to the PRT.	5 min
RxCcrInitNoImsiMsgs	Number of CCR Initial messages received without IMSI.	5 min
RxPdra5002FromPcrf	Number of 5002 DIAMETER_UNKNOWN_SESSION_ID responses received from a PCRF	5 min

Measurement Tag	Description	Collection Interval
RxPdra5002FromPolicyClient	Number of 5002 DIAMETER_UNKNOWN_SESSION_ID responses received from a policy client.	5 min
RxPdraAarMsgs	Number of AAR messages received by PDRA.	5 min
RxPdraAsrMsgs	Number of ASR messages received by PDRA.	5 min
RxPdraCcrInitMsgs	Number of CCR Initial messages received by PDRA per interface.	5 min
RxPdraCcrTerminateMsgs	Number of CCR Termination messages received by PDRA.	5 min
RxPdraCcrUpdateMsgs	Number of CCR Update messages received by PDRA.	5 min
RxPdraFindingBindingSuccess	Number of binding-dependent (Gx-Prime CCR Initial and AAR) messages processed by P-DRA against binding key priorities.	5 min
RxPdraGxpCcrInitMsgs	Number of Gx-Prime CCR Initial messages processed by PDRA	5 min
RxPdraGxpCcrUpdateMsgs	Number of Gx-Prime CCR Update messages received by PDRA	5 min
RxPdraGxpCcrTerminateMsgs	Number of Gx-Prime CCR Termination messages received by PDRA	5 min
RxPdraMsgRateAvg	Average Diameter ingress message processing rate of P-DRA during the collection interval.	5 min
RxPdraMsgRatePeak	Peak Diameter ingress message processing rate of P-DRA during the collection interval.	5 min
RxPdraRarGxMsgs	Number of RAR messages received by PDRA for Gx interface.	5 min
RxPdraRarRxMsgs	Number of RAR messages received by PDRA for Rx interface.	5 min
RxPdraStrMsgs	Number of STR messages received by PDRA.	5 min
TxPdraGxRarQuery	Number of Gx RAR requests initiated by P-DRA for the purposes of querying for session existence at the policy client.	5 min
TxPdraGxRarRelease	Number of Gx RAR requests initiated by P-DRA for the purposes of releasing a session as a result of an error in the P-DRA.	5 min

Measurement Tag	Description	Collection Interval
TmImsiBindingDuration	Histogram of IMSI binding durations.	5 min
TmGxSessionDuration	Histogram of normally terminated Gx session durations.	5 min
TmGxSessionRefresh	Histogram of Gx session refresh durations.	5 min
TmGxxSessionDuration	Histogram of normally terminated Gxx session durations.	5 min
TmGxxSessionRefresh	Histogram of Gxx session refresh durations.	5 min
TmRxSessionDuration	Histogram of normally terminated Rx session durations.	5 min
TmRxSessionRefresh	Histogram of Rx session refresh durations.	5 min
TmGxPrimeSessionDuration	Histogram of normally terminated Gx-Prime session durations.	5 min
TmGxPrimeSessionRefresh	Histogram of Gx-Prime session refresh durations.	5 min
TmS9SessionDuration	Histogram of normally terminated S9 session durations.	5 min
TmS9SessionRefresh	Histogram of S9 session refresh durations.	5 min

RxPdraCcrInitMsgs

Measurement Group P-DRA Diameter Usage

Measurement Type Simple

Measurement Dimension Single

Description Number of CCR Initial messages received by PDRA.

Collection Interval 5 min

Peg Condition The measurement shall be incremented each time the application receives a CCR Initial message.

Measurement Scope All

Recovery

No action necessary.

RxPdraCcrUpdateMsgs

Measurement Group P-DRA Diameter Usage

Measurement Type Simple

Measurement Dimension Single

Description	Number of CCR Update messages received by PDRA.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time the application receives a CCR Update message.
Measurement Scope	All

Recovery

No action necessary.

RxPdraCcrTerminateMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of CCR Termination messages received by PDRA.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time the application receives a CCR Termination message.
Measurement Scope	All

Recovery

No action necessary.

RxCcrInitNoImsiMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of CCR Initial messages without IMSI.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time P-DRA processes a CCR Initial message in which IMSI is not present.
Measurement Scope	All

Recovery

No action necessary.

RxPdraRarGxMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of RAR messages received by PDRA for Gx interface.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time the application receives a RAR message for Gx interface.
Measurement Scope	All

Recovery

No action necessary.

RxPdraRarRxMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of RAR messages received by PDRA for Rx interface.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time the application receives a RAR message for Rx interface.
Measurement Scope	All

Recovery

No action necessary.

RxPdraAarMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of AAR messages received by PDRA.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time the application receives an AAR message.
Measurement Scope	All

Recovery

No action necessary.

RxPdraStrMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of STR messages received by PDRA.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented per interface each time the application receives a STR message.
Measurement Scope	All

Recovery

No action necessary.

PdraGxTopoHidingApplied

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of messages received on Gx interface on which topology hiding has been applied by P-DRA.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time topology hiding is applied when a message from Gx interface is processed by the application.
Measurement Scope	All

Recovery

No action necessary.

PdraRxTopoHidingApplied

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of messages received on Rx interface on which topology hiding has been applied by P-DRA.
Collection Interval	5 min

Peg Condition	The measurement shall be incremented each time topology hiding is applied when a message from Rx interface is processed by the application.
Measurement Scope	All

Recovery

No action necessary.

RxPdraMsgRateAvg

Measurement Group	P-DRA Diameter Usage
Measurement Type	Average
Measurement Dimension	Single
Description	Average Diameter ingress message processing rate of P-DRA during the collection interval.
Collection Interval	5 min
Peg Condition	This peg is periodically updated based on average rate of the Diameter ingress messages being processed by P-DRA calculated over the collection interval.
Measurement Scope	All

Recovery

No action necessary.

RxPdraMsgRatePeak

Measurement Group	P-DRA Diameter Usage
Measurement Type	Max
Measurement Dimension	Single
Description	Peak Diameter ingress message processing rate of P-DRA during the collection interval.
Collection Interval	5 min
Peg Condition	This peg is periodically updated based on maximum rate of the Diameter ingress messages being processed by P-DRA calculated over the collection interval.
Measurement Scope	All

Recovery

No action necessary.

RxPdra5002FromPcrf

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of 5002 DIAMETER_UNKNOWN_SESSION_ID responses received from a PCRF
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time a PCRF responds to a Diameter request with a 5002 response code.
Measurement Scope	All

Recovery

No action necessary.

RxPdra5002FromPolicyClient

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of 5002 DIAMETER_UNKNOWN_SESSION_ID responses received from a policy client.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time a policy client responds to a Diameter request with a 5002 response code.
Measurement Scope	All

Recovery

No action necessary.

TxPdraGxRarRelease

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Gx RAR requests initiated by P-DRA for the purpose of releasing a session as a result of an error in the P-DRA.
Collection Interval	5 min

Peg Condition	The measurement shall be pegged each time a P-DRA DA-MP server sends a P-DRA initiated RAR request to a policy client for the purpose of releasing a session due to an error in the P-DRA
Measurement Scope	All

Recovery

1. Check **Alarms & Events** > **View History GUI** for pSBR Event 22711 - Policy SBR Database Error (refer to the *DSR Alarms and KPIs Reference* for details about this event) for more details about the possible cause of the error.
2. It is recommended to contact *My Oracle Support (MOS)* for support as needed.

RxPdraGxpCcrInitMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx-Prime CCR Initial messages processed by P-DRA against binding key priorities.
Collection Interval	5 min
Peg Condition	Each time a Gx-Prime CCR-I message is processed by P-DRA.
Measurement Scope	All

Recovery

No action required.

RxPdraGxpCcrUpdateMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx-Prime CCR Update messages received by P-DRA.
Collection Interval	5 min
Peg Condition	Each time the P-DRA Application receives a Gx-Prime CCR Update message.
Measurement Scope	All

Recovery

No action required.

RxPdraGxpCcrTerminateMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx-Prime CCR Termination messages received by P-DRA.
Collection Interval	5 min
Peg Condition	Each time the P-DRA Application receives a Gx-Prime CCR Termination message.
Measurement Scope	All

Recovery

No action required.

PdraGxpTopoHidingApplied

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx-Prime CC Request messages on which topology hiding is applied.
Collection Interval	5 min
Peg Condition	Each time a Gx-Prime CC request message is processed by the P-DRA application and topology hiding is applied on the message.
Measurement Scope	All

Recovery

No action required.

RxPdraFindingBindingSuccess

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (bucketed by binding key priority number from 1 to 5)
Description	Number of binding-dependent (Gx-Prime CCR Initial and AAR) messages processed by P-DRA against binding key priorities.
Collection Interval	5 min

Peg Condition	Each time a Gx-Prime CCR-I message is processed by P-DRA. **Note:** The number is sorted and stored in 5 buckets: • Bucket 1 holds the number of Gx-Prime CCR-I or AAR messages that lead to successful binding record findings corresponding to the binding keys with the highest (1) priority. • Bucket 2 (or 3, or 4) holds the number of Gx-Prime CCR-I or AAR messages that lead to successful binding record findings corresponding to the configured binding keys with priority 2 (or 3, or 4). • Bucket 5 holds the number of Gx-Prime CCR-I or AAR messages that lead NO binding record finding after exhausting all binding keys.
Measurement Scope	All

Recovery

No action required.

RxPdraRarGxpMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx-Prime RAR messages processed by P-DRA.
Collection Interval	5 min
Peg Condition	Each time a Gx-Prime RAR message is processed by P-DRA.
Measurement Scope	All

Recovery

No action required.

RxBindCapApn2PcrfPool

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by APN)
Description	The number of times a given APN is successfully mapped to PCRF pool.
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation request is successfully mapped to a PCRF Pool (a configured APN),

	regardless of whether or not the rule matching results in the selection of a PCRF Pool or a PCRF Sub-Pool.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement shows the distribution of binding capable session initiation requests across the range of configured APNs.
2. It is recommended to contact *My Oracle Support (MOS)*.

RxBindCap2PcrfSubPool

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by PCRF Sub-Pool Selection Rule)
Description	The number of binding capable session initiation requests that were mapped to a PCRF Sub-Pool by a given PCRF Sub-Pool Selection Rule.
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation request is successfully mapped to a PCRF Sub-Pool as a result of a given PCRF Sub-Pool Selection Rule, regardless of whether the request is routed to the Sub-Pool or routed elsewhere due to an existing binding.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement shows the distribution of binding capable session initiation requests for which a new binding would route to a PCRF Sub-Pool across the set of PCRF Sub-Pool Selection Rules.
2. It is recommended to contact *My Oracle Support (MOS)*.

RxBindCapPcrfPool2Prt

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by PCRF Pool or Sub-Pool)
Description	The number of binding capable session initiation requests that are routed using a PRT table chosen as a result of PCRF Pool or PCRF Sub-Pool mapping to the PRT.
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation request is routed using a PRT table selected on the basis of the PCRF Pool or

	Sub-Pool, regardless of whether or not the request was routed successfully.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement shows the distribution of binding capable session initiation requests that are routed using a given Peer Routing Table at each site.
2. It is recommended to contact *My Oracle Support (MOS)*.

RxPdraAsrMsgs

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ASR messages received by PDRA.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented each time the application receives an ASR message.
Measurement Scope	All

Recovery

No action necessary.

TxPdraGxRarQuery

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx RAR messages initiated by P-DRA for the purposes of querying for session existence at the policy client.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a P-DRA DA-MP server sends a P-DRA initiated RAR request to a policy client for the purpose of querying the policy client for session existence.
Measurement Scope	All

Recovery

1. If this value is consistently non-zero, it may indicate that the stale session timing is configured to be too short. The stale session timer for a given session is configured in **Policy DRA** > **Configuration** > **Access Point Names** if the session is associated with a configured APN, or **Policy**

DRA > **Configuration** > **Network-Wide Options** if the session is not associated with an APN, or associated with an APN that is not configured.

2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

TmImsiBindingDuration

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of IMSI binding durations.
Collection Interval	5 min
Peg Condition	When an ImsiApnAnchorKey binding is removed due to removal of the last session reference associated with that binding, the appropriate histogram instance shall be incremented by 1. If an ImsiApnAnchorKey record is removed when the only session references are in one of the "early" states (i.e. Early Master or Early Slave), this measurement must not be incremented, to prevent skewing the data with binding capable sessions that were never successfully established.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of subscriber binding lifetimes, providing information to assist in predicting the duration of a binding SBR Database Reconfiguration.

The histogram shows the durations of IMSI bindings. A given subscriber (IMSI) may have more than one binding. A binding may have more than one session associated with it.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

TmGxSessionDuration

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of normally terminated Gx session durations.
Collection Interval	5 min

Peg Condition	When a Gx session record is removed, the appropriate histogram instance shall be incremented by 1.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gx session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

TmGxSessionRefresh

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of Gx session refresh durations.
Collection Interval	5 min
Peg Condition	When a Gx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gx sessions are refreshed during RAA processing.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gx session refresh durations, providing information to assist insetting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the Gx interface is set too short, the session audit will send an RAR to the Policy Client that created the session to ask if it is still valid. Having the Stale Session Timeout set too short results in increased RAR traffic between the Policy DRA and the Policy Clients.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.

- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

TmGxxSessionDuration

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of normally terminated Gxx session durations.
Collection Interval	5 min
Peg Condition	When a Gxx session record is removed, the appropriate histogram instance shall be incremented by 1.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gxx session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

TmGxxSessionRefresh

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of Gxx session refresh durations.
Collection Interval	5 min
Peg Condition	When a Gxx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gxx sessions are refreshed during RAA processing.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gxx session refresh durations, providing information to assist insetting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the Gxx interface is set too short, the session audit will send an RAR to the Policy Client that created the session to ask if it is still valid. Having the Stale Session Timeout set too short results in increased RAR traffic between the Policy DRA and the Policy Clients.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

TmRxSessionDuration

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of normally terminated Rx session durations.
Collection Interval	5 min
Peg Condition	When an Rx session record is removed, the appropriate histogram instance shall be incremented by 1. **Note:** Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Rx session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Note: This measurement applies only to sessions for which session state is being maintained. Policy DRA does not maintain Rx session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

TmRxSessionRefresh

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of Rx session refresh durations.
Collection Interval	5 min
Peg Condition	When an Rx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Rx sessions are refreshed during RAA processing.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Rx session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the Rx interface is set too short, the session audit will remove the session prematurely, possibly causing signaling failures for subsequent in-session request processing needing topology hiding translations.

Note: This measurement applies only to sessions for which session state is being maintained. Policy DRA does not maintain Rx session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

TmGxPrimeSessionDuration

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of normally terminated Gx-Prime session durations.
Collection Interval	5 min
Peg Condition	When a Gx-Prime session record is removed, the appropriate histogram instance shall be incremented by 1. **Note:** Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gx-Prime session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Note: This measurement applies only to sessions for which session state is being maintained. Policy DRA does not maintain Gx-Prime session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

TmGxPrimeSessionRefresh

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of Gx-Prime session refresh durations.
Collection Interval	5 min
Peg Condition	When a Gx-Prime session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gx-Prime sessions are refreshed during RAA processing. **Note:** Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of Gx-Prime session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the Gx-Prime interface is set too short, the session audit will remove the session prematurely, possibly causing signaling failures for subsequent in-session request processing needing topology hiding translations.

Note: This measurement applies only sessions for which session state is being maintained. Policy DRA does not maintain Gx-Prime session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes.
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.

- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

TmS9SessionDuration

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of normally terminated S9 session durations.
Collection Interval	5 min
Peg Condition	When an S9 session record is removed, the appropriate histogram instance shall be incremented by 1.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of S9 session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

TmS9SessionRefresh

Measurement Group	P-DRA Diameter Usage
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	Histogram of S9 session refresh durations.
Collection Interval	5 min
Peg Condition	When an S9 session record is refreshed, the appropriate histogram instance shall be incremented by 1. S9 sessions are refreshed during RAA processing.

Measurement Scope Network, Place Association, Resource Domain

Recovery

This measurement shows a histogram of S9 session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the S9 interface is set too short, the session audit will send an RAR to the Policy Client that created the session to ask if it is still valid. Having the Stale Session Timeout set too short results in increased RAR traffic between the Policy DRAand the Policy Clients.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

P-DRA Diameter Exception measurements

The P-DRA Diameter Exception measurement report contains measurements that provide performance information that is specific to the P-DRA Diameter protocol.

Table 70: P-DRA Diameter Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
PcaOcDrop	Number of PCA-originated messages rejected by DA-MP overload control.	5 min
RxBindCapPcrfPoolNotMapped	Number of binding capable session initiation requests that were destined for a PCRF Pool or Sub-Pool for which no PRT table was configured.	5 min
RxBindCapUnknownApn	Number of binding capable session initiation requests containing an unconfigured APN.	5 min
RxBindCapMissingApn	Number of binding capable session initiation requests containing no APN.	5 min
RxBindDepUnknownApn	Number of attempts to correlate a binding dependent session initiation request using a non-specific binding correlation key (i.e., IMSI or MSISDN), but containing an unconfigured APN.	5 min
RxBindDepMissingApn	Number of attempts to correlate a binding dependent session initiation request using	5 min

Measurement Tag	Description	Collection Interval
	a non-specific binding correlation key (i.e., IMSI or MSISDN), but containing no APN.	
RxBindCapUnknownPcrf	Number of binding capable session initiation answers coming from an unconfigured PCRF.	5 min
RxPcaRARRouteLocalFailure	The number of times the locally generated RAR has been failed to be routed out.	5 min
RxPdraRequestProtocolErr	Number of invalid Request messages received from DRL. Invalid request message includes - unsupported command codes, unsupported application ID, missing or invalid AVPs.	5 min
RxStackEventDiscardedCaFailure	Number of stack events discarded by ComAgent due to ComAgent failures.	5 min
TxAaxMsgDiscardedDueToDrlQueueFull	Number of AAR/AAA messages discarded by P-DRA due to DRL queue being full.	5 min
TxAsxMsgDiscardedDueToDrlQueueFull	Number of ASR messages discarded by P-DRA due to DRL queue being full.	5 min
TxCcxMsgDiscardedDueToDrlQueueFull	Number of CCR/CCA messages discarded by P-DRA due to DRL queue being full.	5 min
TxPdraAnswersGeneratedForDiameterErr	Number of Diameter answers generated by P-DRA due to error in received Diameter messages from DRL.	5 min
TxPdraAnswersGeneratedForPsrbErrResp	Number of Diameter Answer messages generated by P-DRA because of pSBR stack event error response.	5 min
TxPdraAnswersGeneratedConfigErr	Number of Diameter Answers generated by P-DRA due to configuration errors when processing session initiation requests.	5 min
TxPdraErrAnsGeneratedCAFailure	Number of Diameter answers generated by P-DRA due to ComAgent failure.	5 min
TxGxpCcxMsgDiscardedDrlQueueFull	Number of Gx-Prime CCR/CCA messages discarded by P-DRA due to the DRL queue being full.	5 min
TxRaxMsgDiscardedDueToDrlQueueFull	Number of RAR/RAA messages discarded by P-DRA due to DRL queue being full.	5 min

Measurement Tag	Description	Collection Interval
TxStxMsgDiscardedDueToDrlQueueFull	Number of STR/STA messages discarded by P-DRA due to DRL queue being full.	5 min

PcaOcDrop

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of PCA originated messages rejected by DA-MP overload control..
Collection Interval	5 min
Peg Condition	The measurement is pegged each time a PCA-generated RAR is rejected due to DRL queue full or DA-MP OC.
Measurement Scope	All

Recovery

This measurement indicates that a DA-MP may be experiencing congestion. Additional processing capacity at the PCA DA-MP may be needed.

RxBindCapPcrfPoolNotMapped

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding capable session initiation requests that were destined for a PCRF Pool or Sub-Pool for which no PRT table was configured.
Collection Interval	5 min
Peg Condition	Each time a new binding attempt is supposed to be routed to a PCRF Pool or Sub-Pool for which no PRT table is configured at the site where the routing is occurring.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement represents an exception condition in which a PCRF Pool or Sub-Pool has been configured for use at the NOAMP, but no PRT table has been configured at one or more sites to route requests to that PCRF Pool or Sub-Pool. Consider whether a PRT table should be configured at the Network Element to which this measurement applies
2. It is recommended to contact *My Oracle Support (MOS)*.

RxBindCapMissingApn

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding capable session initiation requests containing no APN.
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation request is received containing no APN (i.e. no Called-Station-ID AVP). **Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement represents an exception condition in which binding capable session initiation request are being received with no APN value. Each binding capable session initiation request containing a missing APN is rejected using the Missing Or Unconfigured APN error condition.
2. It is recommended to contact *My Oracle Support (MOS)*.

RxBindCapUnknownApn

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding capable session initiation requests containing an unconfigured APN.
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation request is received containing an APN that is not configured at the Policy DRA NOAMP. **Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement represents an exception condition in which binding capable session initiation request are being received from unknown APN values. Each binding capable session initiation

request containing an unconfigured APN is rejected using the Missing Or Unconfigured APN error condition.

2. It is recommended to contact *My Oracle Support (MOS)*.

RxBindDepUnknownApn

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of attempts to correlate a binding dependent session initiation request using a non-specific binding correlation key (i.e., IMSI or MSISDN), but containing an unconfigured APN.
Collection Interval	5 min
Peg Condition	Each time an attempt is made to find a binding using either IMSI or MSISDN, but the binding dependent session initiation request contains an APN that is not configured at the Policy DRA NOAMP. If both IMSI and MSISDN are configured in the binding key priority table, this measurement can be incremented twice for one binding dependent session initiation request. **Note:** This condition also causes Alarm 22730 - Policy DRA Configuration Error to be asserted. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement represents an exception condition in which the binding key priority is configured to use IMSI, MSISDN, or both, but the binding dependent session initiation request has an APN value that is not configured. This condition causes binding correlation to fail for the MSISDN or IMSI key types. If no other key is present and configured for correlation, the request is rejected using the Binding Not Found error condition.
2. It is recommended to contact *My Oracle Support (MOS)*.

RxBindDepMissingApn

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of attempts to correlate a binding dependent session initiation request using a non-specific binding correlation key (i.e. IMSI or MSISDN), but containing no APN
Collection Interval	5 min

Peg Condition	Each time an attempt is made to find a binding using either IMSI or MSISDN, but the binding dependent session initiation request contains no APN. If both IMSI and MSISDN are configured in the binding key priority table, this measurement can be incremented twice for one binding dependent session initiation request. **Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement represents an exception condition in which the binding key priority is configured to use IMSI, MSISDN, or both, but the binding dependent session initiation request has no APN value. This condition causes binding correlation to fail for the MSISDN or IMSI key types. If no other key is present and configured for correlation, the request is rejected using the Binding Not Found error condition.
2. It is recommended to contact *My Oracle Support (MOS)*.

RxBindCapUnknownPcrf

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding capable session initiation answers coming from an unconfigured PCRF.
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation answer for a new binding is received from a PCRF that is not configured at the Policy DRA SOAM. **Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement represents an exception condition in which binding capable session initiation answers for new bindings are being received from unknown PCRF FQDNs. When this occurs, the binding capable session answered by the unconfigured PCRF is torn down by an RAR containing a Session-Release-Cause AVP send from the Policy DRA.
2. Refer to Alarm 22730 - Policy and Charging Configuration Error in the *DSR Alarms and KPIs Reference* for further information.
3. It is recommended to contact *My Oracle Support (MOS)*.

RxPcaRARRouteLocalFailure

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times the locally generated RAR could not be routed.
Collection Interval	5 min
Peg Condition	This measurement is incremented by one each time an RAA is received with error 3002 for local host. DRL sends this error to PCA if it is not able to route RAR successfully.
Measurement Scope	Network

Recovery

This measurement gives indication that RAR has not been routed outside of DSR, there could be a problem with routing configuration or connectivity has been lost with one or more PCEFs. Check the PRT configuration for remote host in this condition.

RxPcaTransactionsRejected

Measurement Group	P-DRA Diameter Exception, OC-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of transactions rejected by Policy and Charging DSR Application.
Collection Interval	5 min
Peg Condition	Each time the Policy and Charging Application (PCA) initiates an Answer response with a non-successful Result-Code (one containing a non-2xxx value) or discards an ingress Request message for any of the following reasons: • OC-DRA is Unavailable or Disabled • Diameter Protocol Error Detected • OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing • Diameter Request discarded during Congestion • Diameter Message Routing failure due to DRL's Request Queue Full • Communication Agent Error (i.e., Queue Full) • Unexpected SBR Error • Online Charging Session not found when required for routing **Note:** This measurement is only pegged once for an ingress Request message.
Measurement Scope	Server Group

Recovery

1. This measurement gives an indication if any Gy/Ro Diameter Credit Control Application Request messages were NOT successfully relayed by OC-DRA. OC-DRA can fail to relay Gy/Ro Diameter Credit Control Application Request messages for various reasons as stated above for "Peg Condition".
2. This measurement is the summation of the following measurements which should be inspected within the same collection interval to further determine the specific cause of failure:

   - *TxGyRoAnsGenByOcdraPerCmd*
   - *TxGyRoAnsGenByDrlPerCmd*
   - *RxGyRoReqDiscardedCongestionPerCmd*

   Note: Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be the exact sum of the measurements listed above.

RxPdraRequestProtocolErr

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of invalid Request messages received from DRL. Invalid request message includes - unsupported command codes, unsupported application Id, missing or invalid AVPs. The AARs without Dest-Host AVP are still valid AARs and shall be pegged.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time an invalid diameter request message is received by P-DRA.
Measurement Scope	All

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxStackEventDiscardedCaFailure

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of stack events discarded by ComAgent due to ComAgent failure.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a stack event is discarded by ComAgent due to a ComAgent failure as indicated by a returned stack event error code of all available error codes.

Measurement Scope	All

Recovery

1. Check ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details about this event) and ComAgent measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, and *CAHSTxDscrdIntErrSR* for detailed error causes.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)* for assistance.

TxAaxMsgDiscardedDueToDrlQueueFull

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of AAR/AAA messages discarded by P-DRA due to DRL queue being full.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a AAR/AAA message is discarded by the application because DRL queue is full.
Measurement Scope	All

Recovery

No action required.

TxAsxMsgDiscardedDueToDrlQueueFull

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ASR messages discarded by P-DRA due to DRL queue being full.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a ASR message is discarded by the application because DRL queue is full.
Measurement Scope	All

Recovery

No action required.

TxCcxMsgDiscardedDueToDrlQueueFull

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of CCR/CCA messages discarded by P-DRA due to DRL queue being full.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a CCR/CCA message is discarded by the application because DRL queue is full.
Measurement Scope	All

Recovery

No action required.

TxGxpCcxMsgDiscardedDrlQueueFull

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx-Prime CCR/CCA messages discarded by P-DRA due to DRL queue being full.
Collection Interval	5 min
Peg Condition	Each time a Gx-Prime CCR/CCA message is discarded by the P-DRA application because DRL queue is full.
Measurement Scope	All

Recovery

It is recommended to contact *My Oracle Support (MOS)*.

TxPdraAnswersGeneratedConfigErr

Measurement ID	11311
Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Diameter Answers generated by P-DRA due to configuration errors when processing session initiation requests.
Collection Interval	5 min

Peg Condition	This measurement is pegged each time when P-DRA generates an error Anser in processing a session initiation request due to • No PCRF being configured at the site where the request is processed OR • No PCRF ID being found in PCRF table OR • The APN contained in the request message not configured. The measurement is pegged also each time when P-DRA generates an error Answer in processing a binding dependent session initiation request if the APN in te request is not configured in the Policy DRA and the site is configured to correlate on IMSI, MSISDN, or both and no other binding correlation key is successfully used for correlation. **Note:** In binding dependent request cases, this measurement is raised only when the Binding Not Found condition applies, the APN is unconfigured, and an IMSI or MSISDN was used as a possible correlation key.
Measurement Scope	All

Recovery

1. Check the P-DRA System OAM GUI Main Menu: **Policy DRA** > **Configuration** > **PCRFs** to ensure PCRFs are configured properly.
2. If there is an unconfigured PCRF, it means that the binding capable session initiation request was routed to a PCRF that is not configured in **Policy DRA** > **Configuration** > **PCRFs** at the site where the request was received. This indicates a mismatch between the PCRF's configuration and the routing configuration. If the PCRF is a valid choice for the request, configure the PCRF in **Policy DRA** > **Configuration** > **PCRFs**. If the PCRF is not valid for the request, correct the routing table or tables that included the PCRF.

   See also *RxBindCapUnknownPcrf*.
3. If there is an unconfigured APN and if the APN string is valid, configure the APN at the NOAMP using the **Policy DRA** > **Configuration** > **Access Point Names** screen. If the APN string is not valid, investigate the policy client to determine why it is sending policy session initiation requests using the invalid APN.

   See also *RxBindCapUnknownApn* and *RxBindDepUnknownApn*.
4. If there is a missing APN, investigate the policy client to determine why it is sending policy session initiation requests with no APN.

   See also *RxBindCapMissingApn* and *RxBindDepMissingApn*
5. If there are no PCRFs configured, configure PCRFs at the SOAM GUI for the site using **Policy DRA** > **Configuration** > **PCRFs**.
6. If needed, it is recommended to contact *My Oracle Support (MOS)* for further assistance.

TxPdraAnswersGeneratedForDiameterErr

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single

Description	Number of Diameter answers generated by P-DRA due to error in received Diameter messages from DRL.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a diameter answer message is generated by P-DRA due to error in received Diameter messages from DRL. The errors encountered may be: • Diameter protocol errors • P-DRA application specific errors due to absence of some optional AVP(s) in the Diameter request
Measurement Scope	All

Recovery

No action required.

TxPdraAnswersGeneratedForPsbrErrResp

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Diameter Answer messages generated by P-DRA because of pSBR stack event error response.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a diameter answer message is generated by P-DRA because of pSBR stack event error response.
Measurement Scope	All

Recovery

No action required.

TxPdraErrAnsGeneratedCAFailure

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Diameter answers generated by P-DRA due to ComAgent failure.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a diameter answer message is generated by P-DRA due to comagent routing failure.

Measurement Scope	All

Recovery

No action required.

TxRaxMsgDiscardedDueToDrlQueueFull

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of RAR/RAA messages discarded by P-DRA due to DRL queue being full.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a RAR/RAA message is discarded by the application because DRL queue is full. The measurement shall be incremented by one each time a CCR/CCA message is discarded by the application because DRL queue is full.
Measurement Scope	All

Recovery

No action required.

TxStxMsgDiscardedDueToDrlQueueFull

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of STR/STA messages discarded by P-DRA due to DRL queue being full.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a STR/STA message is discarded by the application because DRL queue is full.
Measurement Scope	All

Recovery

No action required.

P-DRA Congestion Exception measurements

The P-DRACongestion Exception measurement report contains measurements that provide performance information that is specific to the P-DRA Diameter protocol.

Table 71: P-DRA Congestion Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxAarMsgDiscardedDueToCongestion	Number of AARmessages discarded by P-DRA due to congestion.	5 min
RxAsrMsgDiscardedDueToCongestion	Number of ASRmessages discarded by P-DRA due to P-DRA congestion.	5 min
RxCcrMsgDiscardedDueToCongestion	Number of CCRmessages discarded by P-DRA due to congestion.	5 min
RxGxpCcrMsgDiscardedDueToCongestion	Number of Gx-Prime CCR messages discarded by P-DRA due to P-DRA internal congestion.	5 min
RxRarMsgDiscardedDueToCongestion	Number of RARmessages discarded by P-DRA due to congestion.	5 min
RxStrMsgDiscardedDueToCongestion	Number of STRmessages discarded by P-DRA due to congestion.	5 min

RxCcrMsgDiscardedDueToCongestion

Measurement Group	P-DRA Congestion Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of CCR messages discarded by P-DRA due to congestion.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time a CCR message is discarded by P-DRA due to congestion.
Measurement Scope	All

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxRarMsgDiscardedDueToCongestion

Measurement Group	P-DRA Congestion Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	Number of RAR messages discarded by P-DRA due to congestion.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time an RAR message is discarded by P-DRA due to congestion.
Measurement Scope	Network, NE, Server

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxAarMsgDiscardedDueToCongestion

Measurement Group	P-DRA Congestion Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of AAR messages discarded by P-DRA due to congestion.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time an AAR message is discarded by P-DRA due to congestion.
Measurement Scope	All

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxStrMsgDiscardedDueToCongestion

Measurement Group	P-DRA Congestion Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of STR messages discarded by P-DRA due to congestion.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time an STR message is discarded by P-DRA due to congestion.
Measurement Scope	All

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxGxpCcrMsgDiscardedDueToCongestion

Measurement Group	P-DRA Diameter Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of Gx-Prime CCR messages discarded by P-DRA due to P-DRA internal congestion.
Collection Interval	5 min
Peg Condition	Each time a Gx-Prime CCR message is discarded by the P-DRA application due to P-DRA internal congestion.
Measurement Scope	All

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxAsrMsgDiscardedDueToCongestion

Measurement Group	P-DRA Congestion Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ASR messages discarded by P-DRA due to P-DRA congestion.
Collection Interval	5 min
Peg Condition	The measurement shall be incremented by one each time an ASR message is discarded by P-DRA due to congestion.
Measurement Scope	All

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance.

P-DRA Site Diameter Usage measurements

The P-DRA Site Diameter Usage measurement report contains measurements that provide performance information that is specific to the P-DRA Diameter protocol.

Table 72: P-DRA Site Diameter Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxSuspectBindingRule MatchIncrCount	Number of times an Suspect Binding Removal Rule matched to a supported Diameter message and the Rule is not configured as "Remove Immediately."	5 min
RxSuspectBindingRule MatchRmvImt	Number of times an Suspect Binding Removal Rule matched to a supported Diameter message and the Rule is configured as "Remove Immediately."	5 min

RxSuspectBindingRuleMatchIncrCount

Measurement Group P-DRA Site Diameter Usage

Measurement Type Simple

Measurement Dimension Arrayed (by Suspect Binding Removal Rule ID)

Description The number of times a Suspect Binding Removal Rule matched to a supported Diameter message and the Rule is not configured as "Remove Immediately."

Collection Interval 5 min

Peg Condition Each time a Suspect Binding Removal Rule match has occurred and the rule is not configured to remove the Binding immediately.

Measurement Scope All

Recovery

No action required.

RxSuspectBindingRuleMatchRmvImt

Measurement Group P-DRA Site Diameter Usage

Measurement Type Simple

Measurement Dimension Arrayed (by Suspect Binding Removal Rule ID)

Description The number of times a Suspect Binding Removal Rule matched to a supported Diameter message and the Rule is configured as "Remove Immediately."

Collection Interval 5 min

Peg Condition Each time a Suspect Binding Removal Rule match has occurred and the rule is configured to remove the binding immediately.

Measurement Scope All

Recovery

No action required.

Peer Node Performance measurements

The "Peer Node" measurement group is a set of measurements that provide performance information that is specific to a Peer Node. These measurements will allow you to determine how many messages are successfully forwarded and received to/from each Peer Node. Measurements such as the following are included in this group.

Table 73: Peer Routing Rules Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvPeerAvpDeleted	Number of Diameter AVPs deleted by an AVP Removal List.	5 min
RxPeerAnswers	Number of routable Answer messages received from Peer-X	5 min
RxPeerRequests	Number of routable Request messages received from Peer-X	5 min
TxPeerAnswers	Number of routable Answer messages sent to Peer-X	5 min
TxPeerRequests	Number of routable Request messages sent to Peer-X	5 min

EvPeerAvpDeleted

Measurement Group	Peer Node Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Node ID)
Description	The number of Diameter AVPs deleted by an AVP Removal List.
Collection Interval	5 min
Peg Condition	When DRL deletes one instance of an AVP from either a Request or Answer message based upon an AVP Removal List assigned to the Peer Node.
Measurement Scope	Site

Recovery

No action required.

RxPeerAnswers

Measurement Group	Peer Node Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Node ID)
Description	Number of routable Answer messages received from Peer-X.
Collection Interval	5 min
Peg Condition	When DRL receives an Answer message event from DCL with a valid Transport Connection ID owned by Peer-X.
Measurement Scope	Server Group

Recovery

No action required.

RxPeerRequests

Measurement Group	Peer Node Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Node ID)
Description	Number of routable Request messages received from Peer-X.
Collection Interval	5 min
Peg Condition	When DRL receives a Request message event from DCL with a valid Transport Connection ID owned by Peer-X.
Measurement Scope	Server Group

Recovery

No action required.

TxPeerAnswers

Measurement Group	Peer Node Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Node ID)
Description	Number of routable Answer messages sent to Peer-X.
Collection Interval	5 min
Peg Condition	When DRL successfully queues an Answer message for Peer-X to DCL.
Measurement Scope	Server Group

Recovery

No action required.

TxPeerRequests

Measurement Group	Peer Node Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Node ID)
Description	Number of routable Request messages sent to Peer-X.
Collection Interval	5 min
Peg Condition	When DRL successfully queues a Request message for Peer-X to DCL.
Measurement Scope	Server Group

Recovery

No action required.

Peer Routing Rules measurements

The Peer Routing Rules measurement report is a set of measurements associated with the usage of Peer Routing Rules. These measurements allow you to determine which Peer Routing Rules are most commonly used and the percentage of times that messages were successfully (or unsuccessfully) routed using the Route List.

Table 74: Peer Routing Rules Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxPrtSelected	Number of times that a peer routing rule from PRT-X was selected for routing a Request message.	5 min
RxRuleDuplicatePriority	Number of times that the Peer Routing Rule was selected for routing a message but another Peer Routing Rule had the same priority and was ignored.	5 min
RxRuleFwdFailAction SendAns	Number of times that the Peer Routing Rule was selected for routing a Request message and the message was not successfully routed because the Peer Routing Rule's Action is "Send Answer".	5 min
RxRuleFwdFailAll	Number of times that the Peer Routing Rule was selected for routing a Request message and the message was not successfully routed for any reason.	5 min

Measurement Tag	Description	Collection Interval
RxRuleSelected	Number of times that the Peer Routing Rule was selected for routing a Request message.	5 min
TxMsgPrtMarkedForCpy	Number of Request Messages set to a valid MCCS and marked for Message Copy	5 min

RxPrtSelected

Measurement Group	Peer Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (PRT ID)
Description	Number of times that a peer routing rule from PRT-X was selected for routing a Request message.
Collection Interval	5 min
Peg Condition	When the DRL selects a peer routing rule from PRT-X for routing a message.
Measurement Scope	Site

Recovery

No action required.

RxRuleDuplicatePriority

Measurement Group	Peer Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Routing Rule ID)
Description	The number of times that the Peer Routing Rule was selected for routing a message but another Peer Routing Rule had the same priority and was ignored.
Collection Interval	5 min
Peg Condition	When the DSR searches the Peer Routing Rules and finds more than one highest priority Peer Routing Rule with the same priority that matches the search criteria. The measurement is associated with the Peer Routing Rule that is selected for routing.
Measurement Scope	Server Group

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage** > **Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page.

Each MP in the server site should be receiving approximately the same ingress transaction per second.

3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage** > **KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. A software defect may exist resulting in PDU buffers not being deallocated to the pool. This alarm should not normally occur when no other congestion alarms are asserted. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

RxRuleFwdFailActionSendAns

Measurement Group	Peer Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Routing Rule ID)
Description	The number of times that the Peer Routing Rule was selected for routing a Request message and the message was not successfully routed because the Peer Routing Rule's action is Send Answer.
Collection Interval	5 min
Peg Condition	When the DSR selects a Peer Routing Rule to route a Request message and the Peer Routing Rule's action is Send Answer.
Measurement Scope	Server Group

Recovery

No action required.

RxRuleFwdFailAll

Measurement Group	Peer Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Routing Rule ID)
Description	The number of times that the Peer Routing Rule was selected for routing a Request message and the message was not successfully routed for any reason other than "Send Answer" and "Abandon with No Answer".
Collection Interval	5 min
Peg Condition	When the DSR selects a Peer Routing Rule to route a Request message and one of the following conditions are met: 1. The Peer Routing Rule's action is Send Answer. 2. The Route List associated with the Peer Routing Rule has an Operational Status of Unavailable.

3. The DSR attempts to route the call but exhausts all routes associated with the Route List and sends an Answer response 3002 (DIAMETER_UNABLE_TO_DELIVER) .

The Route List measurement is associated with the Route List selected for routing.

Measurement Scope Site

Recovery

1. If a Peer Routing Rule has been configured with the action Send Answer, then every time this Peer Routing Rule is selected for routing a message, this measurement will be incremented. A Peer Routing Rule's action can be viewed using the **Diameter** > **Configuration** > **Peer Routing Rules** page.
2. If a Peer Routing Rule has been configured with the action Route to Peer, then every time this Peer Routing Rule is selected for routing a message, the Route List associated with this Peer Routing Rule will be used for routing the message. The Peer Routing Rule's Route List can be viewed using the **Diameter** > **Configuration** > **Peer Routing Rules** page.

RxRuleSelected

Measurement Group	Peer Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Routing Rule ID)
Description	The number of times that the Peer Routing Rule was selected for routing a Request message.
Collection Interval	5 min
Peg Condition	When the DSR selects a Peer Routing Rule for routing a message.
Measurement Scope	Server Group

Recovery

No action required.

TxMsgPrtMarkedForCpy

Measurement ID	14013
Measurement Group	Peer Routing Rules
Measurement Type	Simple
Measurement Dimension	Arrayed (by Peer Routing Rule ID)
Description	The number of Request messages set to a valid MCCS and marked for Message Copy
Collection Interval	5 min

Peg Condition Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to "Route to Peer" and a MCCS is assigned to the peer routing rule.

Measurement Scope

Recovery

No action required.

RD-IWF Performance measurements

The RD-IWF measurement group contains measurements that provide information about the messages that were received and processed (converted) by the RD-IWF.

Table 75: RD-IWF Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxIwfReceivedAll	The number of messages received by the RD-IWF.	5 min
RxIwfReceivedDEA	The number of DEA messages received by the RD-IWF.	5 min
RxIwfReceivedRadiusAccessReq	The number of DERs with embedded RADIUS Access-Request messages received by the RD-IWF.	5 min
TxIwfConvertedDER	The number of DER messages successfully converted by the RD-IWF.	5 min
TxIwfGenRadiusAccessAccept	The number of Access-Accept messages generated by the RD-IWF.	5 min
TxIwfGenRadiusAccessChallenge	The number of Access-Challenge messages generated by the RD-IWF.	5 min
TxIwfGenRadiusAccessReject	The number of Access-Reject messages generated by the RD-IWF.	5 min

RxIwfReceivedAll

Measurement Group RD-IWF

Measurement Type Simple

Measurement Dimension Single

Description The number of messages received by the RD-IWF.

Collection Interval 5 min

Peg Condition	This measurement is incremented each time the RD-IWF is invoked for any message.
Measurement Scope	Site

Recovery

No action required.

RxIwfReceivedDEA

Measurement Group	RD-IWF
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DEA messages received by the RD-IWF.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the RD-IWF is invoked for the DEA.
Measurement Scope	Site

Recovery

No action required.

RxIwfReceivedRadiusAccessReq

Measurement Group	RD-IWF
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of DERs with embedded RADIUS Access-Request messages received by the RD-IWF.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the RD-IWF is invoked for the DER with the embedded RADIUS Access-Request message.
Measurement Scope	Site

Recovery

No action required.

TxIwfConvertedDER

Measurement Group	RD-IWF
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of DER messages successfully converted by the RD-IWF.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the DER message is successfully converted by the RD-IWF.
Measurement Scope	Site

Recovery

No action required.

TxIwfGenRadiusAccessAccept

Measurement Group	RD-IWF
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Access-Accept messages generated by the RD-IWF.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the Access-Accept message is generated by the RD-IWF based on the DEA.
Measurement Scope	Site

Recovery

No action required.

TxIwfGenRadiusAccessChallenge

Measurement Group	RD-IWF
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Access-Challenge messages generated by the RD-IWF.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the Access-Challenge message is generated by the RD-IWF based on the DEA.
Measurement Scope	Site

Recovery

No action required.

TxIwfGenRadiusAccessReject

Measurement Group	RD-IWF
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Access-Reject messages generated by the RD-IWF.
Collection Interval	5 min
Peg Condition	This measurement is incremented each time the Access-Reject message is generated by the RD-IWF based on the DEA.
Measurement Scope	Site

Recovery

No action required.

Route List measurements

The Route List measurement report is a set of measurements associated with the usage of Route Lists. These measurements will allow the user to determine which Route Lists are most commonly used and the percentage of times that messages were successfully (or unsuccessfully) routed using the Route List.

Table 76: Route List Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxRouteListFailure	Number of times that a Route List was selected for routing a Request message and the DSR was unable to successfully route the message.	5 min
RxRouteListSelected	Number of times the Route List was selected for routing a Request message.	5 min
RxRouteListUnavailable	Number of Request messages from a downstream peer that were rejected by a Local Node because the Route List selected had an "Operational Status" of "Unavailable".	5 min
TmRouteListOutage	Time duration that the Route List was unavailable during the measurement interval.	5 min

RxRouteListFailure

Measurement Group	Route List
Measurement Type	Simple
Measurement Dimension	Arrayed (by Route List ID)
Description	The number of times that a Route List was selected for routing a Request message and the DSR was unable to successfully route the message. There are several reasons why a message cannot be routed using a Route List: • The Operational Status of the Route List is Unavailable • The peers in the active Route Group do not support the Application ID in the Request message • The Answer response timer is expiring for messages routed through the active Route Group • Message loop detection is being detected for the peers in the active Route Group
Collection Interval	5 min
Peg Condition	When the DSR selects a Route List to route a Request message and either the Route List's Operational Status is Unavailable or the DSR attempts to route the call but exhausts all routesassociated with the Route List and sends an Answer response 3002 (DIAMETER_UNABLE_TO_DELIVER). The Route List measurement is associated with the Route List selected for routing.
Measurement Scope	Server Group

Recovery

1. Check the Route List settings using the **Diameter** > **Configuration** > **Route Lists** page.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxRouteListSelected

Measurement Group	Route List
Measurement Type	Simple
Measurement Dimension	Arrayed (by Route List ID)
Description	Number of times that Route List was selected for routing a Request message.
Collection Interval	5 min
Peg Condition	When the DSR selects a Route List for routing a message. The Route List measurement is associated with the Route List selected for routing.
Measurement Scope	Server Group

Recovery

No action required.

RxRouteListUnavailable

Measurement Group	Route List
Measurement Type	Simple
Measurement Dimension	Arrayed (by Route List ID)
Description	The number of Request messages from a downstream peer that were rejected by a Local Node because the selected Route List had an Operational Status of Unavailable.
Collection Interval	5 min
Peg Condition	Request message from a downstream peer is rejected by a Local Node because the selected Route List had an Operational Status of Unavailable. This occurs when the Route List was selected via a Peer Routing Rule or implicit routing but its Operational Status was Unavailable.
Measurement Scope	Server Group

Recovery

1. The operation status of the Route List should be verified using the **Diameter** > **Maintenance** > **Route Lists** page.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmRouteListOutage

Measurement Group	Route List
Measurement Type	Simple
Measurement Dimension	Arrayed (by Route List ID)
Time (in seconds) that the Route List was unavailable. This will appear as an aggregate value retrieved from all DA-MPs in a Network Element.Description	
Collection Interval	5 min
Peg Condition	The time duration interval starts when one of the following conditions occurs: 1. A new collection interval for the measurement begins and Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted. 2. Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted.

The time duration interval stops when one of the following conditions occurs:

1. The current collection interval for the measurement ends and Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted.
2. Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is cleared.

When a time duration interval completes, the time measured is added to the total measurement value.

Measurement Scope

Recovery

1. The operation status of the Route List should be verified using the **Diameter** > **Maintenance** > **Route Lists** page.
2. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Routing Usage measurements

The Routing Usage measurement report allows you to evaluate how ingress Request messages are being routed internally within the Relay Agent.

Table 77: Routing Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxRoutedImplicitRealm	The number of Request messages routed via Destination-Realm Implicit Routing.	5 min
RxRoutedIntraMPAttempt	Number of attempts to route an ingress request message via intra-MP routing.	5 min
RxRoutedPeerDirect	Number of Request messages implicitly routed directly to a peer.	5 min
RxRoutedPeerRouteList	Number of Request messages implicitly routed to a peer via its alternate implicit route.	5 min
RxRoutedPrt	Number of Request messages routed using Peer Routing Rules.	5 min

RxRoutedImplicitRealm

Measurement Group	Routing Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)

Description	The number of Request messages routed via Destination-Realm Implicit Routing.
Collection Interval	5 min
Peg Condition	The request message is routed using Destination-Realm Implicit Routing. The "connection measurement" is associated with the Connection from whom the Request message was received.
Measurement Scope	Site

Recovery

No action required.

RxRoutedIntraMPAttempt

Measurement Group	Routing Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of attempts to route an ingress request message via intra-MP routing.
Collection Interval	5 min
Peg Condition	When the DSR selects a transport connection controlled by the local MP and successfully queues the Request message on the local message queue. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxRoutedPeerDirect

Measurement Group	Routing Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages implicitly routed directly to a peer.
Collection Interval	5 min
Peg Condition	When the DSR does not find a Peer Routing Rule that matches message content, the Destination-Host AVP is present and its value matches a FQDN of a peer, and the peer is available for

	egress routing. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxRoutedPeerRouteList

Measurement Group	Routing Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages implicitly routed to a peer via its alternate implicit route.
Collection Interval	5 min
Peg Condition	When the DSR does not find a Peer Routing Rule that matches message content, the Destination-Host AVP is present and its value matches a FQDN of a peer, the peer is Unavailable for egress routing, and the user-defined alternate implicit route for the peer contains a valid Route List. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

RxRoutedPrt

Measurement Group	Routing Usage
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of Request messages routed using Peer Routing Rules.
Collection Interval	5 min
Peg Condition	When the DSR selects the highest priority Peer Routing Rule which matches message content. The connection measurement is associated with the connection from which the Request message was received.
Measurement Scope	Server Group

Recovery

No action required.

SBR Audit measurements

The Session Binding Repository (SBR) Audit measurement report contains measurements that provide performance information that is specific to the SBR Binding Database.

Table 78: SBR Audit Measurement Report Fields

Measurement Tag	Description	Collection Interval
SbrAbortMigratedOcSessionsDeleted	Number of binding independent sessions deleted due to Migration Abort Cleanup.	5 min
SbrAbortMigratedSessionsTargeted	Number of binding-capable sessions scheduled for removal due to Migration Abort Cleanup.	5 min
SbrAcceleratedMigrationSessions Targeted	The number of binding-capable sessions scheduled for removal due to Accelerated Migration.	
SbrImsiAuditDbErr	Number of ImsiAnchorKey audit failures due to DB errors	5 min
SbrMsisdnAuditDbErr	Number of MsidnAlternateKey audit failures due to DB error.	5 min
SbrIpv4AuditDbErr	Number of Ipv4AlternateKey audit failures due to DB error.	5 min
SbrIpv6AuditDbErr	Number of Ipv6AlternateKey audit failures due to DB error	5 min
SbrSessionRecsAudited	Number of Session Records audited during the reporting interval	5 min
SbrExpiredSessionsFound	of Expired Session Records found by audit during the reporting interval	5 min
SbrImsiRecsAudited	Number of IMSI Anchor Key Records audited during the reporting interval	5 min
SbrStaleSessionRemoved	Number of stale session records that are terminated by audit	5 min
SbrIpv4RecsAudited	Number of IPv4 Alternate Key Records audited during the reporting interval	5 min
SbrIpv4RecsRemoved	Number of IPv4 Alternate Key Records removed by audit during the reporting interval	5 min
SbrIpv6RecsAudited	Number of IPv6 Alternate Key Records audited during the reporting interval	5 min

Measurement Tag	Description	Collection Interval
SbrSessionAuditDbErr	Number of Session audit failures due to DB error	5 min
SbrSessionRefAuditDbErr	Number of SessionRef audit failures due to DB errors	5 min
SbrImsiAuditCaErr	Number of ImsiAnchorKey audit failures due to ComAgent errors	5 min
SbrMsisdnAuditCaErr	Number of MsidnAlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record	5 min
SbrIpv4AuditCaErr	Number of Ipv4AlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record	5 min
SbrIpv6AuditCaErr	Number of Ipv6AlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record	5 min
SbrIpv6RecsRemoved	Number of IPv6 Alternate Key Records removed by audit during the reporting interval	5 min
SbrMsisdnRecsAudited	Number of MSISDN Alternate Key Records audited during the reporting interval	5 min
SbrMsisdnRecsRemoved	Number of MSISDN Alternate Key Records removed by audit during the reporting interval	5 min
SbrImsiRecsRemoved	Number of IMSI Anchor Key Records removed by audit during the reporting interval	5 min
SbrImsiSrRemovedByAudit	Number of IMSI binding sessionRefs removed by the binding audit	5 min
SbrMsisdnSrRemovedByAudit	Number of MSISDN binding sessionRefs removed by the binding audit	5 min
SbrOcSessionsAudited	Number of Online Charging sessions audited	5 min
SbrOcSessionsRemovedByAudit	Number of Online Charging sessions that were removed by an audit	5 min
SbrAcceleratedMigration SessionsTargeted	Number of binding capable sessions scheduled for removal due to Accelerated Migration.	5 min

Measurement Tag	Description	Collection Interval
TxSbrAuditSEReqSent	Number of Binding Audit stack events sent to Session servers.	5 min
TxSbrAuditSEReqSentRateAvg	The average number of Binding Audit stack events sent per second to Session servers in the selected time interval.	5 min
TxSbrAuditSEReqSentRatePeak	The maximum number of Binding Audit stack events sent per second to Session servers in the selected time interval.	5 min

SbrAbortMigratedSessionsTargeted

Measurement Group SBR Audit

Measurement Type Simple

Measurement Dimension Single

Description The number of binding-capable sessions scheduled for removal due to Migration Abort Cleanup.

Collection Interval 5 min

Peg Condition This measurement is incremented during SBR audits of the ImsiApnAnchorKey and Session tables when:

- A binding database reconfiguration is in the Abort administrative state and the binding audit finds an IMSI record that was placed using the Creation Signature for the Target Resource Domain or SBR Database. The measurement is incremented once for each sessionRef in the record when the session reference is successfully placed in the Session Integrity Service queue for removal.
- A session database reconfiguration is in the Abort administrative state and the session audit finds a binding capable Session record that was placed using the Creation Signature for the Target Resource Domain or SBR Database. The measurement is incremented once when the session is successfully placed in the Session Integrity Service queue for removal.

Measurement Scope Network

Recovery

This measurement is only used when the network operator chooses to abort an SBR Reconfiguration Plan. The count indicates the number of sessions that were requested to be removed as a result of the migration abort cleanup.

For a Policy DRA binding or session database reconfiguration, migration abort cleanup causes each migrated binding capable session to be scheduled for removal using the Session Integrity capability of PCA. An RAR message including a Session-Release-Cause AVP will be sent for each migrated session. If the policy client responds by sending an RAA followed by a CCR-T, the session will be removed from the P-DRA. When the policy client reestablishes the session, the record will be

created using the Creation Signature of the Initial Resource Domain or SBR Database thereby reversing or backing out the migration.

This measurement gives a count of the number of binding capable sessions affected by migration abort cleanup.

SbrAbortMigratedOcSessionsDeleted

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding independent sessions deleted due to Migration Abort Cleanup.
Collection Interval	5 min
Peg Condition	This measurement is incremented during SBR audits of the OcSession table. When a session database reconfiguration is in the Abort administrative state and the session audit finds a binding independent Session record that was placed using the Creation Signature for the Target Resource Domain or SBR Database. The measurement is incremented once when the binding independent session is successfully deleted.
Measurement Scope	Network

Recovery

This measurement is only used when the network operator chooses to abort an SBR Reconfiguration Plan. The count indicates the number of sessions that were removed as a result of the migration abort cleanup.

For an Online Charging DRA session database reconfiguration, migration abort cleanup causes each migrated Gy/Ro session to be removed. This may cause signaling failures which should cause the CTF to reestablish the sessions and thereby cause them to be successfully moved to the Initial SBR Database or Resource Domain.

This measurement gives a count of the number of binding independent sessions deleted by migration abort cleanup.

SbrAcceleratedMigrationSessionsTargeted

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding-capable sessions scheduled for removal due to Accelerated Migration.
Collection Interval	5 min

Peg Condition	This measurement is incremented during SBR audits of the ImsiApnAnchorKey and Session tables: • A binding database reconfiguration is in the Accelerate administrative state and the binding audit finds an IMSI record that was placed using the Creation Signature for the Initial Resource Domain or SBR Database. The measurement is incremented once for each sessionRef in the record when the invokeSessionIntegrityService stack event is sent to request removal of the binding capable session. • A session database reconfiguration is in the Accelerate administrative state and the session audit finds a binding -capable Session record that was placed using the Creation Signature for the Initial Resource Domain or SBR Database. The measurement is incremented once when the Session Integrity Service is invoked to remove the binding-capable session.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

No action required.

SbrImsiAuditDbErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ImsiAnchorKey audit failures due to DB errors
Collection Interval	5 min
Peg Condition	This peg is updated whenever an ImsiAnchorKey audit fails due to a DB error.
Measurement Scope	All

Recovery

No action necessary.

SbrMsisdnAuditDbErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MsidnAlternateKey audit failures due to DB error.
Collection Interval	5 min

Peg Condition	This peg is updated whenever a MsidnAlternateKey audit fails due to DB error.
Measurement Scope	All

Recovery

No action necessary.

SbrIpv4AuditDbErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Ipv4AlternateKey audit failures due to DB error.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a Ipv4AlternateKey audit fails due to a DB error.
Measurement Scope	All

Recovery

No action necessary.

SbrIpv6AuditDbErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Ipv6AlternateKey audit failures due to DB error.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a Ipv6AlternateKey audit fails due to a DB error.
Measurement Scope	All

Recovery

No action necessary.

SbrSessionRecsAudited

Measurement Group	SBR Audit
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of Session Records audited during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time a Session record is audited.
Measurement Scope	All

Recovery

No action necessary.

SbrExpiredSessionsFound

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Expired Session Records found by audit during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time a Session record is audited and found to be stale.
Measurement Scope	All

Recovery

No action necessary.

SbrImsiRecsAudited

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of IMSI Anchor Key Records audited during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time an ImsiAnchorKey record is audited.
Measurement Scope	All

Recovery

No action necessary.

SbrStaleSessionRemoved

Measurement ID	10865
Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of stale session records that are terminated by audit.
Collection Interval	5 min
Peg Condition	Every time a session record is audited that finds a time out.
Measurement Scope	All

Recovery

No action necessary.

SbrIpv4RecsAudited

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of IPv4 Alternate Key Records audited during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time an Ipv4AlternateKey record is audited.
Measurement Scope	All

Recovery

No action necessary.

SbrIpv4RecsRemoved

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of IPv4 Alternate Key Records removed by audit during the reporting interval.
Collection Interval	5 min

Peg Condition	This peg is incremented by one each time an Ipv4AlternateKey record is removed by audit.
Measurement Scope	All

Recovery

No action necessary.

SbrIpv6RecsAudited

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of IPv6 Alternate Key Records audited during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time an Ipv6AlternateKey record is audited.
Measurement Scope	All

Recovery

No action necessary.

SbrSessionAuditDbErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Session audit failures due to DB error.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a Session audit fails due to DB error.
Measurement Scope	All

Recovery

No action necessary.

SbrSessionRefAuditDbErr

Measurement Group	SBR Audit
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of SessionRef audit failures due to DB errors.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a SessionRef audit fails due to DB error.
Measurement Scope	All

Recovery

No action necessary.

SbrImsiAuditCaErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ImsiAnchorKey audit failures due to ComAgent errors
Collection Interval	5 min
Peg Condition	This peg is updated whenever an ImsiAnchorKey audit fails due to ComAgent error.
Measurement Scope	All

Recovery

1. Check ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details for this event) and ComAgent measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, and *CAHSTxDscrdIntErrSR* for detailed error causes.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)* for assistance.

SbrMsisdnAuditCaErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MsidnAlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record.
Collection Interval	5 min
Peg Condition	This peg is updated when a MsidnAlternateKey audit fails due to a ComAgent error.

Measurement Scope	All

Recovery

1. Check ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details about this event) and ComAgent measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, and *CAHSTxDscrdIntErrSR* for detailed error causes.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)* for assistance.

SbrIpv4AuditCaErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Ipv4AlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a Ipv4AlternateKey audit fails due to ComAgent error.
Measurement Scope	All

Recovery

1. Check ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details for this event) and ComAgent measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, and *CAHSTxDscrdIntErrSR* for detailed error causes.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)* for assistance.

SbrIpv6AuditCaErr

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Ipv6AlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a Ipv6AlternateKey audit fails due to ComAgent error.
Measurement Scope	All

Recovery

1. Refer to ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details about this event) and ComAgent measurements *CAHSTxDscrdCongSR*, *CAHSTxDscrdUnkwnRsrc*, and *CAHSTxDscrdIntErrSR* for detailed error causes.
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)* for assistance.

SbrIpv6RecsRemoved

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of IPv6 Alternate Key Records removed by audit during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time an Ipv6AlternateKey record is removed by audit.
Measurement Scope	All

Recovery

No action necessary.

SbrMsisdnRecsAudited

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MSISDN Alternate Key Records audited during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time an MsisdnAlternateKey record is audited.
Measurement Scope	All

Recovery

No action necessary.

SbrMsisdnRecsRemoved

Measurement Group	SBR Audit
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of MSISDN Alternate Key Records removed by audit during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time an MsisdnAlternateKey record is removed by audit.
Measurement Scope	All

Recovery

No action necessary.

SbrImsiRecsRemoved

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of IMSI Anchor Key Records removed by audit during the reporting interval.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time an ImsiAnchorKey record is removed by audit.
Measurement Scope	All

Recovery

No action necessary.

SbrImsiSrRemovedByAudit

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	A count of the number of IMSI binding sessionRefs removed by the binding audit.
Collection Interval	5 min

Peg Condition	Each time the binding audit decides to remove an IMSI binding sessionRef due the following conditions:
	• PCRF Pooling is Enabled AND
	  • The binding sessionRef has been in the database for at least 30 seconds AND
	  • The binding sessionRef has no corresponding session in the session database

Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the number of IMSI bindings that for some reason were not removed when the associated Diameter session either failed or was terminated via signaling. This unexpected condition could occur if binding pSBR congestion load shedding prevented removal of the sessionRef from the binding record.
2. It is recommended to contact *My Oracle Support (MOS)*.

SbrMsisdnSrRemovedByAudit

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	A count of the number of MSISDN binding sessionRefs removed by the binding audit.
Collection Interval	5 min
Peg Condition	Each time the binding audit decides to remove an MSISDN sessionRef because the binding sessionRef has no corresponding session in the session database.
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the number of MSISDN bindings that for some reason were not removed when the associated Diameter session either failed or was terminated via signaling. This unexpected condition could occur if binding pSBR congestion load shedding prevented removal of the sessionRef from the binding record.
2. It is recommended to contact *My Oracle Support (MOS)*.

SbrOcSessionsAudited

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Online Charging sessions audited.
Collection Interval	5 min
Peg Condition	Each time an Online Charging session record is audited.
Measurement Scope	All

Recovery

No action necessary.

SbrOcSessionsRemovedByAudit

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Online Charging sessions that were removed by an audit.
Collection Interval	5 min
Peg Condition	Each time an Online Charging session is removed by an audit because it was considered to be stale (i.e., session's age exceeds the configured Stale Session Timeout value).
Measurement Scope	All

Recovery

1. This measurement represents a condition in which Online Charging sessions which have not seen any activity for a duration exceeding the configured Stale Session Timeout value are deleted by an audit. Online Charging session's last touch timestamp is updated for each time it is access for routing Credit-Control-Request messages with CC-Request-Type AVP set to UPDATE_REQUEST (CCR-U) and Re-Auth-Request (RAR) messages.
2. Stale Session Timeout values are configurable on a per APN basis. Verify that the Stale Session Timeout values are properly configured by selecting **Main Menu** > **Policy and Charging** > **Configuration** > **Access Point Names** on the NOAMP GUI.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SbrAcceleratedMigrationSessionsTargeted

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding capable sessions scheduled for removal due to Accelerated Migration.
Collection Interval	5 min
Peg Condition	This measurement is incremented during SBR audits of the ImsiApnAnchorKey and Session tables as follows: • A binding database reconfiguration is in the Accelerate administrative state and the binding audit finds an IMSI record that was placed using the Creation Signature for the Initial Resource Domain or SBR Database. The measurement is incremented once for each sessionRef in the record when the invokeSessionIntegrityService stack event is sent to request removal of the binding capable session.

- A session database reconfiguration is in the Accelerate administrative state and the session audit finds a binding capable Session record that was placed using the Creation Signature for the Initial Resource Domain or SBR Database. The measurement is incremented once when the Session Integrity Service is invoked to remove the binding capable session.

Measurement Scope Network, Place Association, Resource Domain

Recovery

This measurement is only used when the network operator chooses to accelerate an SBR Reconfiguration Plan. The count indicates the number of sessions that were removed or requested to be removed from a Policy DRA binding or session database or an Online Charging DRA session database as a result of the accelerated migration.

For a Policy DRA binding or session database reconfiguration, accelerated migration causes each non-migrated binding capable session to be scheduled for removal using the Session Integrity capability of PCA. An RAR message including a Session-Release-Cause AVP will be sent for each non-migrated session. If the policy client responds by sending an RAA followed by a CCR-T, the session will be removed from the P-DRA. When the policy client reestablishes the session, the record will be successfully migrated.

For an Online Charging DRA session database reconfiguration, accelerated migration causes each non-migrated Gy/Ro session to be removed, possibly resulting in signaling failures which should cause the CTF to reestablish the sessions and thereby cause them to be successfully migrated.

TxSbrAuditSEReqSent

Measurement Group	SBR Audit
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Binding Audit stack events sent to Session servers.
Collection Interval	5 min
Peg Condition	This measurement is incremented during SBR audits of the ImsiApnAnchorKey, MsisdnApnAlternateKey, Ipv4AlternateKeyV2, Ipv6AlternateKeyV2 tables each time a FindSessionRef stack event is sent for a session reference in the binding table being audited to the corresponding session SBR server.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

No action required. This measurement is informational only.

TxSbrAuditSEReqSentRateAvg

Measurement Group	SBR Audit

Measurement Type	Average
Measurement Dimension	Single
Description	The average number of Binding Audit stack events sent per second to Session servers in the selected time interval.
Collection Interval	5 min
Peg Condition	This measurement accumulates the average rate (per second) of FindSessionRef stack events sent for session references in binding tables being audited.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

No action required. This measurement is informational only.

TxSbrAuditSEReqSentRatePeak

Measurement Group	SBR Audit
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum number of Binding Audit stack events sent per second to Session servers in the selected time interval.
Collection Interval	5 min
Peg Condition	This measurement accumulates the peak rate (per second) of FindSessionRef stack events sent for session references in binding tables being audited.
Measurement Scope	Network, Place Association, Resource Domain

Recovery

No action required. This measurement is informational only.

SBR Binding Performance measurements

The SBR Binding Performance measurement report contains measurements that provide performance information that is specific to the SBR Binding Database.

Table 79: SBR Binding Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
MaxSessPerApnExceeded	The number of times the maximum allowed bound session limit per APN was exceeded for a given APN.	5 min
SbrNewBindingsCreated	The number of new bindings created	5 min

Measurement Tag	Description	Collection Interval
SbrUpdatedBindings	The number of existing bindings updated but not deleted, i.e. the Session Reference removed is not the last one	5 min
SbrBindTermByAscSess	The number bindings (final) terminated due to termination of all associated sessions	5 min
SbrAltKeyCreated	The number of alternate key records created	5 min
SbrAltKeyDel	The number of alternate key records removed	5 min
SbrMaxBindingAgeAtTerm	The maximum binding (final) age when binding is terminated due to termination of all associated sessions	5 min
SbrAvgBindingAgeAtTerm	The average binding (final) age when binding is terminated due to termination of all associated sessions	5 min
SbrAvgBindingDbRead	The average rate of Binding database reads per second	5 min
SbrMaxBindingDbRead	The maximum rate of Binding database reads	5 min
SbrAvgBindingDbWrite	The average rate of Binding database writes per second	5 min
SbrMaxBindingDbWrite	The maximum rate of Binding database writes	5 min
SbrLockCollisions	The number of collisions that occurred periodically while acquiring a lock	5 min
TmSbrProcessingTime	The time (in microseconds) to process an event on SBR. The measurement is to measure the average time (ms) taken for SBR to process the stack event received from P-DRA and send back the stack event response to P-DRA	5 min
SbrEarlySlaveBindingsCreated	The number of binding capable session initiation requests that were treated as slaves of an existing early binding	5 min
SbrFinalBindingsFollowed	The number of binding capable session initiation requests that matched a final binding and were routed using the bound PCRF	5 min
SbrSlavePollingContinue	The number of early binding polling attempts for which the poller was instructed to continue polling	5 min

Measurement Tag	Description	Collection Interval
SbrSlavePollingRouteToPcrf	The number of early binding polling attempts for which the poller was instructed to route the request to a bound PCRF	5 min
SbrPolicyBindingRecsAvg	The average number of active SBR Binding Sessions	5 min
SbrPolicyBindingRecsPeak	The maximum number of active SBR Binding Sessions	5 min
EvSuspectBindingEventIgnored	The number of Suspect Binding event that were ignored because they arrived within the Ignore Interval.	5 min
EvSuspectBindingEvent CountReset	The number of time a Suspect Binding event resets the Suspect Binding Count because it arrived after the Reset Interval.	5 min
EvSuspectBindingRemoved	The number of times a Suspect Binding was removed by a Remove Immediately Suspect Binding Event or if a Suspect Binding Event Count exceeded the configured "Suspect Binding Removal Events Threshold" value.	5 min

MaxSessPerApnExceeded

Measurement Group SBR Binding Performance

Measurement Type Simple

Measurement Dimension Arrayed (per APN)

Description The number of times the maximum allowed bound session limit per APN is exceeded for a given APN.

Collection Interval 5 min

Peg Condition This measurement is incremented by one each time the maximum allowed binding-capable session limit per APN is exceeded for a given APN:

Note: Session exceeded treatment is not needed while pegging this measurement. Determine the appropriate treatment (reject or route) based on the configuration. If treatment is changed in the middle of a measurement, it does not need to be considered.

Note: This measurement takes precedence over *MaxSessionPerImsiExceeded* when max sessions per APN is configured to 10.

Measurement Scope Network

Recovery

This measurement gives indication that the maximum allowed session per IMSI per APN limit was exceeded. Verify that the maximum allowed sessions per IMSI value for this APN is set to the expected maximum number of binding capable sessions that a given subscriber should have for this APN. If the value is correct, no further action is necessary.

SbrNewBindingsCreated

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of new bindings created.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a new binding is created.
Measurement Scope	Place Association

Recovery

No action necessary.

SbrUpdatedBindings

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of existing bindings updated but not deleted, i.e. the Session Reference removed is not the last one
Collection Interval	5 min
Peg Condition	This peg is updated whenever an existing binding is updated.
Measurement Scope	Place Association

Recovery

No action necessary.

SbrBindTermByAscSess

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number bindings (final) terminated due to termination of all associated sessions.

Collection Interval	5 min
Peg Condition	This peg is updated whenever a binding is terminated due to termination of all associated sessions.
Measurement Scope	Place Association

Recovery

No action necessary.

SbrAltKeyCreated

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of alternate key records created.
Collection Interval	5 min
Peg Condition	This peg is updated whenever an alternate key record is created.
Measurement Scope	Place Association

Recovery

No action necessary.

SbrAltKeyDel

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of alternate key records removed.
Collection Interval	5 min
Peg Condition	This peg is updated whenever an alternate key record is deleted.
Measurement Scope	Place Association

Recovery

No action necessary.

SbrMaxBindingAgeAtTerm

Measurement Group	SBR Binding Performance
Measurement Type	Max
Measurement Dimension	Single

Description	The maximum binding (final) age when binding is terminated due to termination of all associated sessions.
Collection Interval	5 min
Peg Condition	The time interval starts when the binding becomes final and stops when binding is terminated due to termination of all associated sessions.
Measurement Scope	Place Association

Recovery

No action necessary.

SbrAvgBindingAgeAtTerm

Measurement Group	SBR Binding Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average binding (final) age when binding is terminated due to termination of all associated sessions.
Collection Interval	5 min
Peg Condition	The time interval starts when the binding becomes final and stops when binding is terminated due to termination of all associated sessions.
Measurement Scope	All

Recovery

No action necessary.

SbrAvgBindingDbRead

Measurement Group	SBR Binding Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average rate of Binding database reads per second
Collection Interval	5 min
Peg Condition	It is calculated based on the total number of sampled binding database reads during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrMaxBindingDbRead

Measurement Group	SBR Binding Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum rate of Binding database reads
Collection Interval	5 min
Peg Condition	At the end of each sample period associated with the average binding database reads, if the maximum value exceeds the current value of this measurement, then the measurement will be updated with the current sample periods value.
Measurement Scope	All

Recovery

No action necessary.

SbrAvgBindingDbWrite

Measurement Group	SBR Binding Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average rate of Binding database writes per second
Collection Interval	5 min
Peg Condition	It is calculated based on the total number of sampled binding database writes during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrMaxBindingDbWrite

Measurement Group	SBR Binding Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum rate of Binding database writes
Collection Interval	5 min
Peg Condition	At the end of each sample period associated with the average binding database writes, if the maximum value exceeds the

	current value of this measurement, then the measurement will be updated with the current sample periods value.
Measurement Scope	All

Recovery

No action necessary.

SbrLockCollisions

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	The number of collisions that occurred periodically while acquiring a lock
Collection Interval	5 min
Peg Condition	Each time a collision occurs while acquiring a lock
Measurement Scope	All

Recovery

No action necessary.

TmSbrProcessingTime

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	The time (in microseconds) to process an event on SBR. The measurement is to measure the average time (ms) taken for SBR to process the stack event received from P-DRA and send back the stack event response to P-DRA.
Collection Interval	5 min
Peg Condition	Each time a stack event is received from P-DRA and is sent back the response to P-DRA
Measurement Scope	All

Recovery

No action necessary.

SbrEarlySlaveBindingsCreated

Measurement Group	SBR Binding Performance

Measurement Type	The number of binding capable session initiation requests that were treated as slaves of an existing early binding. This gives an indication of the frequency at which the early binding logic is being executed.
Measurement Dimension	Simple
Description	Single
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation request is received and all of the following conditions are true: • The CCR-I matches an existing binding that is in the Early state (i.e. there exists an EarlyMaster sessionRef for the IMSI and APN, or IMSI and PCRF Pool) • The existing EarlyMaster sessionRef has not been in existence for longer than the Maximum Early Binding Lifetime configured in **Policy DRA** > **Configuration** > **Network-Wide Options** • PCRF Pooling is Enabled
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the frequency at which the early binding mechanism is being exercised.
2. It is recommended to contact *My Oracle Support (MOS)*.

SbrFinalBindingsFollowed

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding capable session initiation requests that matched a final binding and were routed using the bound PCRF.
Collection Interval	5 min
Peg Condition	Each time a binding capable session initiation request is received and all of the following conditions are true: • The CCR-I matches an existing binding that is in the Final state (i.e. there exists a Final sessionRef for the IMSI and APN, or IMSI and PCRF Pool) • PCRF Pooling is Enabled
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the frequency at which binding capable session initiation requests are routed according to existing bindings.

2. It is recommended to contact *My Oracle Support (MOS)*.

SbrSlavePollingContinue

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	A count of the number of early binding polling attempts for which the poller was instructed to continue polling.
Collection Interval	5 min
Peg Condition	Each time an Early Binding Slave session polls the Early Binding Master and all of the following conditions are true: • The Early Binding Master sessionRef still exists in the binding database and is in the EarlyMaster state. • The Early Binding Slave sessionRef still exists in the binding database • The Early Binding Master sessionRef has not been in existence for longer than the Maximum Early Binding Lifetime • PCRF Pooling is Enabled
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the frequency at slave pollers are asked to continue polling. If this value is equal to or higher than the *SbrEarlySlaveBindingsCreated*, the Early Binding Polling Interval configured in **Policy DRA** > **Configuration** > **Network-Wide Options** may be set to a duration too short, causing unnecessary polling attempts. If this value is very low relative to the *SbrEarlySlaveBindingsCreated*, the Early Binding Polling Interval may be set to a duration too long, causing unnecessary latency for slave sessions.
2. It is recommended to contact *My Oracle Support (MOS)*.

SbrSlavePollingRouteToPcrf

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	A count of the number of early binding polling attempts for which the poller was instructed to route the request to a bound PCRF.
Collection Interval	5 min

Peg Condition	Each time an Early Binding Slave session polls the Early Binding Master and all of the following conditions are true: • The Early Binding Master sessionRef still exists in the binding database and is in the Final state. • The Early Binding Slave sessionRef still exists in the binding database • PCRF Pooling is Enabled
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the Early Binding Slave sessions whose master sessionRefs became Final and were therefore routed using the bound PCRF. If this value is lower than the *SbrEarlySlaveBindingsCreated* value, check the SBR Binding Exception measurement report for measurement *SbrSlavePollingFail*.
2. It is recommended to contact *My Oracle Support (MOS)*.

SbrPolicyBindingRecsAvg

Measurement Group	SBR Binding Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average number of active SBR Binding sessions
Collection Interval	5 min
Peg Condition	The average of all SBR Policy Binding Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	All

Recovery

No action necessary.

SbrPolicyBindingRecsPeak

Measurement Group	SBR Binding Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum number of active SBR Binding sessions
Collection Interval	5 min
Peg Condition	The maximum of all SBR Policy Binding Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

Measurement Scope	All

Recovery

No action necessary.

EvSuspectBindingEventIgnored

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Suspect Binding events that were ignored because they arrived within the Ignore Interval.
Collection Interval	5 min
Peg Condition	Each time a Suspect Binding Removal event is received within the "Suspect Binding Removal Events Ignore Interval" from the last counted suspect binding removal event.
Measurement Scope	All

Recovery

Modify the "Suspect Binding Removal Events Ignore Interval" value in **Policy and Charging** > **Configuration** > **Policy DRA** > **Network-Wide Options** if the measurement becomes too large.

EvSuspectBindingEventCountReset

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times a Suspect Binding event resets the Suspect Binding Count because it arrived after the Reset Interval.
Collection Interval	5 min
Peg Condition	Each time asuspect binding removal event is received that does not increment the Suspect Binding Removal Count, because the time interval between this event and the last counted suspect binding removal event is larger than the configured Suspect Binding Removal Events Reset Interval.
Measurement Scope	All

Recovery

Adjust the "Suspect Binding Removal Events Reset Interval" value in **Policy and Charging** > **Configuration** > **Policy DRA** > **Network-Wide Options** if necessary.

EvSuspectBindingRemoved

Measurement Group	SBR Binding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Remove Immediately, Threshold Exceeded, Total)
Description	The number of times a Suspect Binding was removed by a Remove Immediately Suspect Binding Event or if a Suspect Binding Event Count exceeded the configured "Suspect Binding Removal Events Threshold" value.
Collection Interval	5 min
Peg Condition	Each time the binding SBR receives a request from DA-MP to "remove" a suspect binding immediately, or if the Suspect Binding Count for any SessionRef record exceeds the Suspect Binding Removal Events Threshold value. **Note:** This measurement is pegged twice, once for any reason listed above, and once for "Total."
Measurement Scope	All

Recovery

Adjust the "Suspect Binding Removal Events Threshold" value in **Policy and Charging** > **Configuration** > **Policy DRA** > **Network-Wide Options** if an unusually large number of measurements occur in a very short time period.

SBR Binding Exception measurements

The SBR Binding Exception measurement report contains measurements that provide performance information that is specific to the SBR Binding Database.

Table 80: SBR Binding Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
InitReqRejectedTreatment ConfigToRoute	The number of times a binding capable session initiation request is not routed, even though session exceeded treatment is configured to route.	5 min
MaxSessionPerImsiExceeded	The number of times the maximum allowed session per IMSI limit was exceeded.	5 min
MaxSessPerApnExceeded SisInvocationFail	The number of times a bound session was replaced due to Maximum Sessions Per IMSI being exceeded for an APN, but no session release RAR could be sent for the replaced session due to SIS queue full condition.	5 min

Measurement Tag	Description	Collection Interval
SbrCreateBindDbErr	The number of errors creating a binding record.	5 min
SbrUpdateBindDbErr	The number of errors updating a binding record.	5 min
SbrRemoveBindDbErr	The number of errors removing a suspect binding record	5 min
SbrCreateAltKeyDbErr	The number of errors creating an alternate key record.	5 min
SbrRemoveAltKeyDbErr	The number of errors removing an alternate key record.	5 min
SbrFindBindDbErr	The number of errors when encountered for finding a binding record.	5 min
SbrEarlyTooLongSrRemoved	The number of sessionRefs found to be in the EarlyMaster or EarlySlave state for too long	5 min
SbrSlavePollingFail	The number of binding capable session initiation requests that were not routed due to polling failures	5 min
SbrSuspectSrRemoved	The number of binding sessionRefs removed as a result of the Suspect Binding mechanism	5 min

InitReqRejectedTreatmentConfigToRoute

Measurement Group SBR Binding Exception

Measurement Type Simple

Measurement Dimension Single

Description The number of times a binding capable session initiation request is not routed, even though session exceeded treatment is configured to route.

Collection Interval 5 min

Peg Condition This measurement is incremented by one each time a binding capable session initiation request is not routed, even though session exceeded treatment is configured to route. These are scenarios in which session initiation request is not routed when session exceeded treatment is configured to route:

- Maximum sessions per APN limit is not reached yet but not slots are available
- Maximum sessions per APN limit is reached but binding state is early.
- Maximum sessions per APN limit is reached but the lifetime of existing session to be replaced is less than the Maximum Early

Binding Lifetime (configured in **Policy DRA** > **Network-Wide Options**)

Measurement Scope Network

Recovery

This measurement gives indication that binding-capable session initiation request is not routed even though session exceeded treatment is configured to route. These are scenarios in which session initiation request is not routed when session exceeded treatment is configured to route:

- Maximum sessions per APN limit is not reached yet but no slots are available
- Maximum sessions per APN limit is reached but binding state is early
- Maximum sessions per APN limit is reached but the lifetime of existing session to be replaced is less than the Maximum Early Binding Lifetime (configured in **Policy DRA** > **Network-Wide Options**)

Each time this measurement is pegged, P-DRA generates:

- Error answer message using the Policy SBR Error result code. The Error-Message AVP contains a three-digit code that indicates the specific reason for the failure
- Event 22719 with the reason in additional information

MaxSessionPerImsiExceeded

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times the maximum allowed session per IMSI limit is exceeded.
Collection Interval	5 min
Peg Condition	This measurement is incremented by one each time the maximum allowed binding-capable session limit per IMSI is exceeded
Measurement Scope	Network

Recovery

This measurement gives indication that the maximum allowed session per IMSI limit is exceeded. An IMSI is only allowed to have up to 10 concurrent binding-capable sessions, regardless of limits that may be set for the maximum number of sessions per APN. This measurement is pegged when no per APN limit has been exceeded, yet the IMSI has already used up all 10 of its bound sessions. Verify that the per APN session limits are configured appropriately. If the limits are configured appropriately, verify that the IMSI is not creating session for more than the expected number of APNs. Each time this measurement is pegged, P-DRA generates an error answer message using the Policy SBR Error result code and three-digit code 521.

MaxSessPerApnExceededSisInvocationFail

Measurement Group SBR Binding Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times a bound session was replaced due to Maximum Sessions Per IMSI being exceeded for an APN, but no session release RAR could be sent for the replaced session due to SIS queue full condition.
Collection Interval	5 min
Peg Condition	This measurement is incremented by one each time a bound session is replaced with a new session because the maximum session per APN limit is exceeded but SIS invocation failed because of the SIS queue being full.
Measurement Scope	Network

Recovery

When a new binding-capable session inititation request would exceed the per-APN session limit, P-DRA may attempt to replace an existing bound session. A bound session may be replaced if it exists for more than early binding lifetime and it is not in the "early" state (Early Master or Early Slave). When a bound session is replaced, P-DRA attempts to send a session release RAR to the session's PCEF to ensure that the PCEF and PCRF are both aware that the session is no longer valid. This measurement is pegged when the attempt to send the session release RAR has failed due to resource exhaustion in the P-DRA system. If this measurement is pegged and neither of these conditions are true, it is recommended to contact *My Oracle Support (MOS)* for further assistance.

- Connectivity has been lost with one or more PCRFs from a P-DRA site
- A binding database reconfiguration is in progress and has been accelerated

SbrCreateBindDbErr

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of errors creating a binding record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in creating a binding record.
Measurement Scope	All

Recovery

No action necessary.

SbrUpdateBindDbErr

Measurement Group	SBR Binding Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	The number of errors updating a binding record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in updating a binding record.
Measurement Scope	All

Recovery

No action necessary.

SbrRemoveBindDbErr

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of errors removing a suspect binding record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in removing a suspect binding record.
Measurement Scope	All

Recovery

No action necessary.

SbrCreateAltKeyDbErr

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of errors creating an alternate key record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in creating an alternate key record.
Measurement Scope	All

Recovery

No action necessary.

SbrRemoveAltKeyDbErr

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of errors removing an alternate key record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in removing an alternate key record.
Measurement Scope	All

Recovery

No action necessary.

SbrFindBindDbErr

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of errors when encountered for finding a binding record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in finding a binding record.
Measurement Scope	All

Recovery

No action necessary.

SbrEarlyTooLongSrRemoved

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	A count of the number of sessionRefs found to be in the EarlyMaster or EarlySlave state for longer than the Maximum Early Binding Lifetime.
Collection Interval	5 min

Peg Condition	Each time sessionRef is discovered that has been in an early state (i.e. EarlyMaster or EarlySlave) for longer than the Maximum Early Binding Lifetime and the following conditions are true:
	• PCRF Pooling is Enabled AND
	  • A binding capable session initiation request is received that matches an existing binding and the binding has been in the EarlyMaster state for longer than the Maximum Early Binding Lifetime OR
	  • A binding capable session initiation request is received and no slots are available for new sessionRefs, but at least one sessionRef has been in the EarlySlave state for longer than the Maximum Early Binding Lifetime OR
	  • A slave session polls a master sessionRef that has been in the EarlyMaster state for longer than the Maximum Early Binding Lifetime

Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the frequency at which binding sessionRefs are discovered in an early state for longer than expected. This unexpected condition could occur if the Maximum Early Binding Lifetime value is configured to be nearly equal to or shorter than the Diameter transaction timer. It could also occur if the binding pSBR was in congestion and load shedding prevented the session from being transitioned from the early state to a final state. In either case the "stuck" sessionRef is removed, preventing it from disrupting further signaling.
2. It is recommended to contact *My Oracle Support (MOS)*.

SbrSlavePollingFail

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of binding capable session initiation requests that were not routed to polling failures. This includes the following: slave sessionRef not found, master sessionRef, master sessionRef found, but existed for longer than the Maximum Early Binding Lifetime.
Collection Interval	5 min

Peg Condition	Each time an Early Binding Slave session polls the Early Binding master and the following conditions are met:
	• PCRF Pooling is Enabled AND
	  • The Early Binding Master sessionRef no longer exists in the binding database OR
	  • The Early Binding Slave sessionRef no longer exists in the binding database OR

- The Early Binding Master sessionRef exists in the binding database in the EarlyMaster state, but has been in existence for longer than the Maximum Early Binding Lifetime

Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the Early Binding Slave sessions whose polling attempts did NOT result in a final binding to route towards. Each time this measurement is pegged, P-DRA generates an error answer message using the Binding Found But Unable To Route Diameter result code. The Error-Message AVP contains a 3-digit code that indicates the specific reason for the failure.
2. It is recommended to contact *My Oracle Support (MOS)*.

SbrSuspectSrRemoved

Measurement Group	SBR Binding Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	A count of the number of binding sessionRefs removed as a result of the Suspect Binding mechanism.
Collection Interval	5 min
Peg Condition	Each time a binding sessionRef is removed by the suspect binding mechanism (i.e., due to inaccessibility of a PCRF for more than 30 seconds while signaling attempts are being performed).
Measurement Scope	Network Element, Server Group, Resource Domain, Place, Place Association

Recovery

1. This measurement gives an indication of the number of binding sessionRefs that were automatically removed from the Policy DRA binding database as a result of continued inability to route binding capable session initiation requests to a given PCRF.
2. It is recommended to contact *My Oracle Support (MOS)*.

SBR Session Performance measurements

The Session Binding Repository (SBR) Session Binding Performance measurement report contains measurements that provide performance information that is specific to the SBR Session Database.

Table 81: SBR Session Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
SbrSessionsCreated	Number of new sessions created	5 min
SbrSessionsRefresh	Number of existing sessions refreshed	5 min
SbrSessionsDeleted	Number of sessions removed	5 min
SbrAvgSessionAgeTermPerAPN	Average time interval (in hours) per APN between the time when a session record is created and the time when it is successfully terminated.	5 min
SbrMaxSessionAgeTermPerAPN	Maximum time interval (in hours) per APN between the time when a session record is created and the time when it is successfully terminated	5 min
SbrAvgSessionDbRead	Average rate of Session database reads per second	5 min
SbrMaxSessionDbRead	Maximum rate of Session database reads	5 min
SbrAvgSessionDbWrite	Average rate of session database writes per second	5 min
SbrMaxSessionDbWrite	Maximum rate of session database writes	5 min
SbrPendingRarLockCollisions	Number of collisions occured periodically while acquiring a lock to update PendingRar table	5 min
SbrPolicySessionRecsAvg	Average number of active SBR Policy sessions	5 min
SbrPolicySessionRevsPeak	Maximum number of active SBR Policy sessions	5 min
SbrOcSessionsCreated	Number of new Online Charging sessions created.	5 min
SbrOcSessionsRefreshed	Number of Online Charging sessions refreshed.	5 min
SbrOcSessionsRemoved	Number of Online Charging sessions removed.	5 min
SbrAvgOcSessionDbReads	Average rate of Online Charging session database reads per second.	5 min
SbrMaxOcSessionDbReads	Maximum rate of Online Charging session database reads per second.	5 min
SbrAvgOcSessionDbWrites	Average rate of Online Charging session database writes per second.	5 min
SbrMaxOcSessionDbWrites	Max rate of Online Charging session database writes per second.	5 min

Measurement Tag	Description	Collection Interval
SbrAvgOcSessionAge TermPerApn	Average time (in hours) per APN between the time when an Online Charging session is created and the time when it is successfully terminated.	5 min
SbrMaxOcSessionAge TermPerApn	Maximum time (in hours) per APN between the time when an Online Charging session is created and the time when it is successfully terminated.	5 min
RxInvokeSisPerRarType	Number of times that the Session Integrity Service received a request to invoke the Session Integrity Service for each RAR type.	5 min
TxInvokeSisResultPerResultCode	Number of times that the Session Integrity Service was invoked per result type.	5 min

SbrSessionsCreated

Measurement Group SBR Session Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of new sessions created.

Collection Interval 5 min

Peg Condition This peg is updated whenever a new session is created.

Measurement Scope All

Recovery

No action necessary.

SbrSessionsRefresh

Measurement Group SBR Session Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of existing sessions refreshed.

Collection Interval 5 min

Peg Condition This peg is updated whenever an existing session is refreshed.

Measurement Scope All

Recovery

No action necessary.

SbrSessionsDeleted

Measurement Group	SBR Session Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of sessions removed.
Collection Interval	5 min
Peg Condition	This peg is updated whenever a session is deleted.
Measurement Scope	All

Recovery

No action necessary.

SbrAvgSessionAgeTermPerAPN

Measurement ID	10863
Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by APN ID)
Description	The average time interval (in hours) per APN between the time when a session record is created and the time when it is successfully terminated.
Collection Interval	5 min
Peg Condition	The time interval starts when a session record is created as a result of createSession stack event and stops when the session record is terminated successfully as a result of removeSession stack event
Measurement Scope	All

Recovery

No action necessary.

SbrMaxSessionAgeTermPerAPN

Measurement ID	10864
Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by APN ID)

Description	The maximum time interval (in hours) per APN between the time when a session record is created and the time when it is successfully terminated.
Collection Interval	5 min
Peg Condition	The time interval starts when a session record is created as a result of createSession stack event and stops when the session record is terminated successfully as a result of removeSession stack event
Measurement Scope	All

Recovery

No action necessary.

SbrAvgSessionDbRead

Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average rate of Session database reads per second
Collection Interval	5 min
Peg Condition	It is calculated based on the total number of sampled session database reads during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrMaxSessionDbRead

Measurement Group	SBR Session Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum rate of Session database reads
Collection Interval	5 min
Peg Condition	At the end of each sample period associated with the average session database reads, if the maximum value exceeds the current value of this measurement, then the measurement will be updated with the current sample periods value
Measurement Scope	All

Recovery

No action necessary.

SbrAvgSessionDbWrite

Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average rate of session database writes per second
Collection Interval	5 min
Peg Condition	It is calculated based on the total number of sampled session database writes during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrMaxSessionDbWrite

Measurement Group	SBR Session Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum rate of session database writes
Collection Interval	5 min
Peg Condition	At the end of each sample period associated with the average session database writes, if the maximum value exceeds the current value of this measurement, then the measurement will be updated with the current sample periods value.
Measurement Scope	All

Recovery

No action necessary.

SbrPendingRarLockCollisions

Measurement Group	SBR Session Performance
Measurement Type	Simple
Measurement Dimension	Arrayed
Description	The number of collisions occured periodically while acquiring a lock to update PendingRar table.
Collection Interval	5 min
Peg Condition	Each time a collision occurs while acquiring a lock to update PendingRar table.

Measurement Scope	All

Recovery

No action necessary.

SbrPolicySessionRecsAvg

Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average number of active SBR Policy sessions
Collection Interval	5 min
Peg Condition	The average of all SBR Policy Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	All

Recovery

No action necessary.

SbrPolicySessionRecsPeak

Measurement Group	SBR Session Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum number of active SBR Policy sessions.
Collection Interval	5 min
Peg Condition	The maximum of all SBR Policy Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	All

Recovery

No action necessary.

SbrOcSessionsCreated

Measurement Group	SBR Session Performance
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of new Online Charging sessions created.
Collection Interval	5 min
Peg Condition	Each time a new Online Charging session is successfully created.
Measurement Scope	All

Recovery

No action necessary.

SbrOcSessionsRefreshed

Measurement Group	SBR Session Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of new Online Charging sessions refreshed
Collection Interval	5 min
Peg Condition	Each time a new Online Charging session is successfully refreshed.
Measurement Scope	All

Recovery

No action necessary.

SbrOcSessionsRemoved

Measurement Group	SBR Session Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of new Online Charging sessions removed.
Collection Interval	5 min
Peg Condition	Each time a new Online Charging session is successfully removed.
Measurement Scope	All

Recovery

No action necessary.

SbrAvgOcSessionDbReads

Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average rate of Online Charging Session database reads per second.
Collection Interval	5 min
Peg Condition	The average of all the SBR Online Charging Session DB Read Rate KPI samples taken during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrMaxOcSessionDbReads

Measurement Group	SBR Session Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum rate of Online Charging Session database reads per second.
Collection Interval	5 min
Peg Condition	The maximum of all the SBR Online Charging Session DB Read Rate KPI samples taken during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrAvgOcSessionDbWrites

Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average rate of Online Charging Session database writes per second.
Collection Interval	5 min

Peg Condition	The average of all the SBR Online Charging Session DB Write Rate KPI samples taken during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrMaxOcSessionDbWrites

Measurement Group	SBR Session Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The maximum rate of Online Charging Session database writes per second.
Collection Interval	5 min
Peg Condition	The maximum of all the SBR Online Charging Session DB Write Rate KPI samples taken during the collection interval.
Measurement Scope	All

Recovery

No action necessary.

SbrAvgOcSessionAgeTermPerApn

Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by APN ID)
Description	The average time (in hours) per APN between the time when an Online Charging session is created and the time when it is successfully terminated.
Collection Interval	5 min
Peg Condition	The average time interval for each Online Charging session starts when a session record is created as a result of createOcSession stack event and stops when the session record is terminated successfully as a result of removeOcSession stack event.
Measurement Scope	All

Recovery

No action necessary.

SbrMaxOcSessionAgeTermPerApn

Measurement Group	SBR Session Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by APN ID)
Description	The maximum time (in hours) per APN between the time when an Online Charging session is created and the time when it is successfully terminated.
Collection Interval	5 min
Peg Condition	The maximum time interval for each Online Charging session starts when a session record is created as a result of createOcSession stack event and stops when the session record is terminated successfully as a result of removeOcSession stack event.
Measurement Scope	All

Recovery

No action necessary.

SbrOcSessionRecsAvg

Measurement Group	SBR Session Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average number of active SBR Online Charging sessions
Collection Interval	5 min
Peg Condition	The average of all SBR Online Charging Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	All

Recovery

No action necessary.

SbrOcSessionRecsPeak

Measurement Group	SBR Session Performance
Measurement Type	Max
Measurement Dimension	Single

Description	The maximum number of active SBR Online Charging sessions
Collection Interval	5 min
Peg Condition	The maximum of all SBR Online Charging Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).
Measurement Scope	All

Recovery

No action necessary.

RxInvokeSisPerRarType

Measurement Group	SBR Session Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Query, Release NoSessionRef, Release NoSessionId, Release DupSessionRef, Release DuplicateSession, Release CreateSessionRefFail, Release CreateSessionFail, Release CreateIpv4AltKeyFail, Release CreateIpv6AltKeyFail, Release CreateMsisdnAltKeyFail, Release PcrfNotConfig, Release UpdateBindingFail, Release CreateSessionNotSent, Release CreateBindingNotSent, Release SuspectRuleImmediate Release SuspectRuleThreshold, and RAR Total)
Description	The number of times that the Session Integrity Service received a request to invoke the Session Integrity Service for each RAR type.
Collection Interval	5 min
Peg Condition	Each time a request is received to invoke the Session Integrity Service via invokeSessionIntegrityService stack event for each RAR type. **Note:** There will be a separate array value for each type of release. **Note:** This measurement is pegged twice, once for RAR types and once for "Total."
Measurement Scope	All

Recovery

No action required.

TxInvokeSisResultPerResultCode

Measurement Group	SBR Session Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Success, Missing SessionRef, SessionRef Not Found, Session Not Found, PolicyClientHost Not Found, Invalid RAR Type,

	Pending Query RAR Queue Full, Pending Release RAR Queue Full, Unexpected DB Error, and Total)
Description	The number of times that the Session Integrity Service was invoked per result type.
Collection Interval	5 min
Peg Condition	Each time the invokeSessionIntegrityServiceResult response is sent out. The array element corresponding to the given result will be pegged. **Note:** This measurement is pegged twice, once for result type and once for "Total."
Measurement Scope	All

Recovery

Modify the "Query RAR Queue Capacity Per Session Server Group" or "Release RAR Queue Capacity Per Session Server Group" in **Policy and Charging** > **Configuration** > **Policy DRA** > **Network-Wide Options**.

SBR Session Exception measurements

The Session Binding Repository (SBR) Session Exception measurement report contains measurements that provide performance information that is specific to the SBR Session Database.

Table 82: SBR Session Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
SbrCreateSessDbErr	Number of errors creating a session record	5 min
SbrRefreshSessDbErr	Number of errors refreshing a session record	5 min
SbrRemSessDbErr	Number of errors terminating a session record	5 min
SbrFindSessDbErr	Number of errors when encountered for finding a session record	5 min
SbrRemSessRarAttempts	Number of sessions removed as a result of no response being received in 8 consecutive attempts to query the policy client for existence of the session	5 min
SbrCreateOcSessionDbErr	Number of Online Charging session creation errors	5 min
SbrFindOcSessionDbErr	Number of Online Charging session query errors	5 min
SbrOcSessionNotFound	Number of Online Charging sessions not found	5 min
SbrRefreshOcSessionDbErr	Number of Online Charging session refresh errors	5 min

Measurement Tag	Description	Collection Interval
SbrRemoveOcSessionDbErr	Number of Online Charging session removal errors	5 min
TxPendingRarDeleted ExceedMax	Number of pending RARs(Query or Release) that have been removed due to exceeding the maximum send attempts allowed per Query or Release RAR.	5 min

SbrCreateSessDbErr

Measurement Group SBR Session Exception

Measurement Type Simple

Measurement Dimension Single

Description The number of errors creating a session record.

Collection Interval 5 min

Peg Condition This peg is updated whenever there is an error in creating a session record.

Measurement Scope All

Recovery

No action necessary.

SbrRefreshSessDbErr

Measurement Group SBR Session Exception

Measurement Type Simple

Measurement Dimension Single

Description The number of errors refreshing a session record.

Collection Interval 5 min

Peg Condition This peg is updated whenever there is an error in refreshing a session record.

Measurement Scope All

Recovery

No action necessary.

SbrRemSessDbErr

Measurement Group SBR Session Exception

Measurement Type Simple

Measurement Dimension	Single
Description	The number of errors terminating a session record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in terminating a session record.
Measurement Scope	All

Recovery

No action necessary.

SbrFindSessDbErr

Measurement Group	SBR Session Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of errors when encountered for finding a session record.
Collection Interval	5 min
Peg Condition	This peg is updated whenever there is an error in finding a session record.
Measurement Scope	All

Recovery

No action necessary.

SbrRemSessRarAttempts

Measurement Group	SBR Session Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of sessions removed as a result of no response being received in 8 consecutive attempts to query the policy client for existence of the session.
Collection Interval	5 min
Peg Condition	This peg is incremented by one each time a session is removed due to lack of response after the maximum number of attempts to query the policy client have been attempted.
Measurement Scope	Network

Recovery

1. A non-zero value in this field may indicate that a policy client has become inaccessible after creating Diameter sessions on the Policy DRA.
2. If a policy client was purposely removed from service, please disregard this measurement.

SbrCreateOcSessionDbErr

Measurement Group	SBR Session Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Online Charging session creation errors.
Collection Interval	5 min
Peg Condition	Each time a failure is encountered in creating an Online Charging Session record in the SBR Session database. Online Charging Session record failures include: • Online Charging Session record already exists (i.e. retransmission) • Database Access Failure
Measurement Scope	All

Recovery

No action necessary.

SbrFindOcSessionDbErr

Measurement Group	SBR Session Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Online Charging session query errors.
Collection Interval	5 min
Peg Condition	Each time a failure is encountered in finding an Online Charging Session record in the SBR Session database.
Measurement Scope	All

Recovery

No action necessary.

SbrOcSessionNotFound

Measurement Group	SBR Session Exception
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of Online Charging sessions not found.
Collection Interval	5 min
Peg Condition	Each time an Online Charging session record is not found in the SBR Session database.
Measurement Scope	All

Recovery

No action necessary.

SbrRefreshOcSessionDbErr

Measurement Group	SBR Session Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Online Charging session refresh errors.
Collection Interval	5 min
Peg Condition	Each time there is a failure in refreshing an Online Charging session record in the SBR Session database.
Measurement Scope	All

Recovery

No action necessary.

SbrRemoveOcSessionDbErr

Measurement Group	SBR Session Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Online Charging session removal errors.
Collection Interval	5 min
Peg Condition	Each time there is a failure in deleting an Online Charging Session record from the SBR Session database.
Measurement Scope	All

Recovery

No action necessary.

TxPendingRarDeletedExceedMax

Measurement Group	SBR Session Exception
Measurement Type	Simple

Measurement Dimension	Arrayed (by Query, Release, and Total)
Description	The number of pending RARs (Query or Release) that have been removed due to exceeding the maximum send attempts allowed per Query or Release RAR.
Collection Interval	5 min
Peg Condition	Each time a RAR entry in the queue/table is removed for exceeding the maximum attempts value. This measurement is incremented by one for each Query or Release RAR entry removed due to exceeding the maximum Send Attempts per Query or Release RAR value.
Measurement Scope	All

Recovery

Modify the "Maximum Attempts Per Query RAR" or "Maximum Attempts Per Release RAR" in **Policy and Charging** > **Configuration** > **Policy DRA** > **Network-Wide Options**.

Server Exception measurements

Measurement Tag	Description	Collection Interval
EvError	Number of normal errors encountered	30 min
EvVital	Number of severe errors encountered	30 min

EvError

Measurement ID	9901
Measurement Group	Server Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of error trace conditions. This indicates that an expected but abnormal path was taken in the software, which warrants further investigation. By default, error tracing is disabled. Non-zero values in this measurement indicate that something is occurring that would have generated an error trace, were error tracing enabled. These error trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events.
Collection Interval	30 min
Peg Condition	Any time a software path is executed that contains an error trace, regardless of whether or not error tracing is enabled.
Measurement Scope	NE, Server

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if any unexpected non-zero values in this measurement occur.

EvVital

Measurement ID	9900
Measurement Group	Server Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of vital trace conditions encountered. A vital trace indicates that an unexpected path was taken in the software, which warrants further investigation. These vital trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events. During application start-up and shutdown, vital traces are used to show details that can aid in debugging of initialization and shutdown problems. These traces are always enabled and cannot be turned off. It is a VITAL error condition for any other instance.
Collection Interval	30 min
Peg Condition	Any time a software path is executed that contains a vital trace
Measurement Scope	NE, Server

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if any unexpected non-zero values in this measurement occur.

Server M3UA Exception measurements

Table 83: Server M3UA Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxM3uaERROR	Number of M3UA ERROR messages sent by the MP server. M3UA ERROR message are sent to inform the originator of an M3UA message that the message cannot be processed due to some problem with the message syntax or semantics.	30 min
RxM3uaERROR	Number of times an M3UA ERROR messages received by the MP server. M3UA ERROR message are sent to inform the originator of an	30 min

Measurement Tag	Description	Collection Interval
	M3UA message that the message cannot be processed due to some problem with the message syntax or semantics.	
M3UAStackQueueFull	Number of messages that were discarded because the M3UA Stack Event Queue was full	30 min
SCTPAggrQueueFull	Number of egress messages that were discarded because the maximum number of SCTP messages queued in all SCTP Single Association Writer Queues exceeded a maximum capacity.	30 min
ANSIDiscardsNo PDUBuffer	ANSI ingress message discarded: no PDU buffer.	30 min
ITUDiscardsNo PDUBuffer	The number of ingress messages that were discarded because no ITU/ITUN PUD Buffers were available.	30 min

TxM3uaERROR

Measurement Group	Server M3UA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of M3UA ERROR messages sent by the MP server. M3UA ERROR message are sent to inform the originator of an M3UA message that the message cannot be processed due to some problem with the message syntax or semantics.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an ERROR message is sent.
Measurement Scope	NE, Server

Recovery

1. If all is well this measurement will have a zero value. If this measurement has a non-zero value, review the event history in the GUI under **Alarms & Events** > **View History**. Look for **Event ID 19231**, which provides details about the reason for sending the M3UA ERROR message.
2. If the error reason in **Event ID 19231** indicates a problem with the routing context, verify that the routing context used for the specified link is configured to match between the ASP and the SG.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxM3uaERROR

Measurement Group	Server M3UA Exception
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of times M3UA ERROR messages are received by the MP server. M3UA ERROR messages are sent to inform the originator of an M3UA message that the message cannot be processed because of a problem with the message syntax or semantics.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time an ERROR message is received.
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement will have a zero value. If this measurement has a non-zero value, review the event history in the GUI under **Alarms & Events** > **View History**. Look for Event ID 19235, which provides details about the reason for sending the M3UA ERROR message.
2. Event ID 19235 provides details about the reason for receiving the M3UA ERROR message. If the reason indicates a problem with the routing context, verify that the routing context used for the link specified in Event ID 19235 is configured to match between the ASP and the SG.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

M3UAStackQueueFull

Measurement Group	Server M3UA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages that were discarded because the M3UA Stack Event Queue was full. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	30 min
Peg Condition	Each time a M3UA Stack Event Queue message is discarded
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SCTPAggrQueueFull

Measurement Group	Server M3UA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress messages that were discarded because the number of SCTP messages queued in all SCTP Single Association Writer Queues exceeded a maximum capacity.
Collection Interval	30 min
Peg Condition	Each time a SCTP Aggregate Association Writer Queue message is discarded
Measurement Scope	NE, Server

Recovery

1. An IP network or STP/SG problem may exist preventing SCTP from transmitting messages into the network on multiple Associations at the same pace that messages are being received from the network.
2. One or more SCTP Association Writer threads may be experiencing a problem preventing it from processing events from its event queue. Examine the alarm log from GUI main menu under **Alarms & Events** > **View Active**.
3. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from **Status & Manage** > **Server**.
4. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from**Status & Manage** > **KPIs**. Each MP in the server site should be receiving approximately the same ingress transactions per second.
5. There may be an insufficient number of MPs configured to handle the network traffic load. You can monitor the ingress traffic rate of each MP from **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
6. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

ANSIDiscardsNoPDUBuffer

Measurement ID	9245
Measurement Group	Server M3UA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress ANSI messages that were discarded because no ANSI PDU Buffers were available.
Collection Interval	30 min
Peg Condition	Each time an ANSI message is discarded
Measurement Scope	NE, Server

Recovery

1. If this measurement is greater than zero, a network (IP or SS7) problem might exist or an MP-specific software problem may exist (for example, a buffer pool leak).
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

ITUDiscardsNoPDUBuffer

Measurement ID	9245
Measurement Group	Server M3UA Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress messages that were discarded because no ITUI/IITUN PDU Buffers were available.
Collection Interval	30 min
Peg Condition	Each time an ITUI message is discarded
Measurement Scope	NE, Server

Recovery

1. If this measurement is greater than zero, a network (IP or SS7) problem might exist or an MP-specific software problem may exist (for example, a buffer pool leak).
2. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

Server M3UA Performance measurements

Table 84: Server M3UA Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxNonDataMsg	Non-DATA messages sent by the MP server. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release.	30 min
RxNonDataMsg	Non-DATA messages received by the MP server. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, MGMT, SSNM). RKM messaging is not supported in this release.	30 min
TxNonDataOctets	Non-DATA octets sent by the MP server. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release. SCTP, IP, and Ethernet headers are not included in the octet counts.	30 min

Measurement Tag	Description	Collection Interval
RxNonDataOctets	Non-DATA octets received by the MP server. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, MGMT, SSNM). RKM messaging is not supported in this release. SCTP, IP, and Ethernet headers are not included in the octet counts.	30 min
M3UAStackQueuePeak	Peak M3UA Network Management Event Queue utilization (0-100%) measured during the collection interval.	30 min
M3UAStackQueueAvg	Average M3UA Stack Event Queue utilization (0-100%) measured during the collection interval.	30 min
SCTPAggrQueuePeak	Peak SCTP Aggregate Association Writer Queue utilization (0-100%) measured during the collection interval.	30 min
SCTPAggrQueueAvg	Average of all SCTP Aggregate Association Writer Queue utilization samples taken during the collection interval.	30 min

TxNonDataMsg

Measurement Group Server M3UA Performance

Measurement Type Simple

Measurement Dimension Single

Description This measurement gives the level of non-DATA M3UA signaling that occurred on the MP server during the reporting period. The count includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release

Collection Interval 30 min, Daily

Peg Condition This measurement is incremented by one each time any of the following occur:

- An ASP-UP message is sent.
- An ASP-DOWN message is sent.
- An ASP-ACTIVE message is sent.
- An ASP-INACTIVE message is sent.
- An ERROR message is sent.
- A DAUD message is sent.
- A BEAT message is sent.
- A BEAT-ACK message is sent.

Measurement Scope NE, Server

Recovery

No action required.

RxNonDataMsg

Measurement Group	Server M3UA Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, MGMT, SSNM). RKM messaging is not supported in this release.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time any of the following occur: • An ASP-UP-ACK message is received • An ASP-DOWN-ACK message is received • An ASP-ACTIVE-ACK message is received • An ASP-INACTIVE-ACK message is received • An ERROR message is received • A DUNA message is received • A DAVA message is received • A DRST message is received • A SCON message is received • A DUPU message is received • A BEAT message is received • A BEAT-ACK message is received • A NOTIFY message is received
Measurement Scope	NE, Server

Recovery

No action required.

TxNonDataOctets

Measurement Group	Server M3UA Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	This measurement gives the number of octets of non-DATA M3UA signaling that occurred on the MP server during the reporting period. The count includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release. SCTP, IP, and Ethernet headers are not included in the octet counts.
Collection Interval	30 min

Peg Condition	This measurement is incremented by the number of octets in the message (not including SCTP, IP, or Ethernet headers) each time any of the following occur: • An ASP-UP message is sent. • An ASP-DOWN message is sent. • An ASP-ACTIVE message is sent. • An ASP-INACTIVE message is sent. • An ERROR message is sent. • A DAUD message is sent. • A BEAT message is sent. • A BEAT-ACK message is sent.
Measurement Scope	NE, Server

Recovery

No action required.

RxNonDataOctets

Measurement Group	Server M3UA Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	This measurement gives the number of octets of non-DATA M3UA signaling occurring on the MP server during the reporting period. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, MGMT, SSNM). RKM messaging is not supported in this release. SCTP, IP, and Ethernet headers are not included in the octet counts.
Collection Interval	30 min
Peg Condition	This measurement is incremented by the number of octets in the message (not including SCTP, IP, or Ethernet headers) each time any of the following occur: • An ASP-UP-ACK message is received • An ASP-DOWN-ACK message is received • An ASP-ACTIVE-ACK message is received • An ASP-INACTIVE-ACK message is received • An ERROR message is received • A DUNA message is received • A DAVA message is received • A DRST message is received • A SCON message is received • A DUPU message is received • A BEAT message is received • A BEAT-ACK message is received • A NOTIFY message is received

Measurement Scope NE, Server

Recovery

No action required.

M3UAStackQueuePeak

Measurement Group	Server M3UA Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak M3UA Network Management Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	30 min
Peg Condition	The maximum M3UA Stack Event Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

M3UAStackQueueAvg

Measurement Group	Server M3UA Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average M3UA Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	30 min
Peg Condition	The average of all M3UA Stack Event Queue utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SCTPAggrQueuePeak

Measurement Group	Server M3UA Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak SCTP Aggregate Association Writer Queue utilization (0-100%) measured during the collection interval.
Collection Interval	30 min
Peg Condition	The maximum SCTP Aggregate Association Writer Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. An IP network or STP/SG problem may exist preventing SCTP from transmitting messages into the network on multiple Associations at the same pace that messages are being received from the network.
2. One or more SCTP Association Writer threads may be experiencing a problem preventing it from processing events from its event queue. Examine the alarm log from the GUI main menu under **Alarms & Events** > **View Active**.
3. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from **Status & Manage** > **Server**.
4. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from **Status & Manage** > **KPIs**. Each MP in the server site should be receiving approximately the same ingress transaction per second.
5. There may be an insufficient number of MPs configured to handle the network traffic load. You can monitor the ingress traffic rate of each MP from **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
6. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

SCTPAggrQueueAvg

Measurement Group	Server M3UA Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average SCTP Aggregate Association Writer Queue utilization (0-100%) measured during the collection interval.

Collection Interval	30 min
Peg Condition	The average of all SCTP Aggregate Association Writer Queue utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. An IP network or STP/SG problem may exist preventing SCTP from transmitting messages into the network on multiple Associations at the same pace that messages are being received from the network.
2. One or more SCTP Association Writer threads may be experiencing a problem preventing it from processing events from its event queue. Examine the alarm log from the GUI main menu under **Alarms & Events** > **View Active**.
3. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from **Status & Manage** > **Server**.
4. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from **Status & Manage** > **KPIs**. Each MP in the server site should be receiving approximately the same ingress transaction per second.
5. There may be an insufficient number of MPs configured to handle the network traffic load. You can monitor the ingress traffic rate of each MP from **Status & Manage** > **KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
6. If the problem persists, it is recommended to contact *My Oracle Support (MOS)*.

Server M3UA Usage measurements

Table 85: Server M3UA Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxASPSM	Number of ASPSM messages sent by the MP server.	30 min
RxASPSM	Number of ASPSM messages received by the server.	30 min
TxASPTM	Number of ASPTM messages sent by the MP server.	30 min
RxASPTM	Number of ASPTM messages received by the MP server.	30 min
TxDAUD	Number of DAUD messages sent by the MP server. DAUD message are sent periodically as an audit when the SG reports that a point code is unavailable or congested.	30 min
RxSSNM	Number of SSNM messages received by the MP server. SSNM messages are sent from the SG as	30 min

Measurement Tag	Description	Collection Interval
	information about point code and user part status in the network.	
RxM3uaNOTIFY	Number of M3UA NOTIFY messages received by the MP server. M3UA NOTIFY messages are sent by the SG to indicate its view of the M3UA AS state. These messages do not cause any signaling behavior on the MP server.	30 min

TxASPSM

Measurement Group Server M3UA Usage

Measurement Type Simple

Measurement Dimension Single

Description This measurement gives the level of ASPSM M3UA signaling that occurs on the MP server during the reporting period.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time any of the following occur:

- An ASP-UP message is sent.
- An ASP-DOWN message is sent.
- A BEAT message is sent.
- A BEAT-ACK message is sent.

Measurement Scope NE, Server

Recovery

No action required.

RxASPSM

Measurement Group Server M3UA Usage

Measurement Type Simple

Measurement Dimension Single

Description This measurement gives the level of ASPSM M3UA signaling occurring on the MP server during the reporting period.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time any of the following occur:

- An ASP-UP-ACK message is received
- An ASP-DOWN-ACK message is received
- A BEAT message is received

- A BEAT-ACK message is received

Measurement Scope NE, Server

Recovery

No action required.

TxASPTM

Measurement Group Server M3UA Usage

Measurement Type Simple

Measurement Dimension Single

Description This measurement gives the level of ASPTM M3UA signaling that occurs on the MP server during the reporting period.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time any of the following occur:

- An ASP-ACTIVE message is sent.
- An ASP-INACTIVE message is sent.

Measurement Scope NE, Server

Recovery

No action required.

RxASPTM

Measurement Group Server M3UA Usage

Measurement Type Simple

Measurement Dimension Single

Description This measurement gives the level of ASPTM M3UA signaling occurring on the MP server during the reporting period.

Collection Interval 30 min

Peg Condition This measurement is incremented by one each time any of the following occur:

- An ASP-ACTIVE-ACK message is received
- An ASP-INACTIVE-ACK message is received

Measurement Scope NE, Server

Recovery

No action required.

TxDAUD

Measurement Group	Server M3UA Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	This measurement indicates the level of auditing that occurs on the MP server during the reporting period. AUD message are sent periodically as an audit when the SG reports that a point code is unavailable or congested.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time a DAUD message is sent.
Measurement Scope	NE, Server

Recovery

No action required.

RxSSNM

Measurement Group	Server M3UA Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of SSNM messages received by the MP server. SSNM messages are sent from the SG as information about point code and user part status in the network. This measurement indicates the level of SSNM signaling occurring on the MP server during the reporting period.
Collection Interval	30 min
Peg Condition	This measurement is incremented by the number of octets in the message (not including SCTP, IP, or Ethernet headers) each time any of the following occur: • A DUNA message is received • A DAVA message is received • A DRST message is received • A SCON message is received • A DUPU message is received
Measurement Scope	NE, Server

Recovery

No action required.

RxM3uaNOTIFY

Measurement Group	Server M3UA Usage
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of M3UA NOTIFY messages received by the MP server. M3UA NOTIFY messages are sent by the SG to indicate its view of the M3UA AS state. These messages do not cause any signaling behavior on the MP server.
Collection Interval	30 min
Peg Condition	This measurement is incremented by one each time a NOTIFY message is received.
Measurement Scope	NE, Server

Recovery

No action required.

Server MTP3 Exception measurements

Table 86: Server MTP3 Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxM3RLDestUnknown	Number of egress messages M3RL discarded because no routing information exists for the RSP/Destination.	5 min
TxM3RLDestUnavail	Number of egress messages M3RL discarded because the RSP/Destination was Unavailable.	5 min
TxM3RLDestCong	Number of egress messages M3RL discarded because the RSP/Destination's congestion level was higher than the message's priority.	5 min
TxM3RLBufOverflow	Number of egress messages M3RL discarded because of an internal buffer overflow.	5 min
RxM3RLInvalidDPC	Number of ingress messages M3RL discarded because the DPC was not the True Point Code (TPC) or Capability Point Code (CPC) configured for the MP.	5 min

Measurement Tag	Description	Collection Interval
RxM3RLInvalidSI	Number of ingress messages M3RL discarded because the Service Indicator received was not 0 (SNM) or 3 (SCCP).	5 min
RxM3RLInvalidNI	Number of ingress messages M3RL discarded because the Network Indicator received was not the same value configured for the MP.	5 min
RxM3RLBufOverflow	Number of ingress messages M3RL discarded because of an internal buffer overflow.	5 min
M3RLStackQueueFull	Number of messages that were discarded because the M3RL Stack Event Queue was full.	5 min
M3RLNetMgtQueueFull	Number of M3RL network management messages (SI=0) that were discarded because the M3RL Network Management Event Queue was full.	5 min

TxM3RLDestUnknown

Measurement Group Server MTP3 Exception

Measurement Type Simple

Measurement Dimension Single

Description The number of egress messages M3RL discarded because no routing information exists for the RSP/Destination.

Collection Interval 5 min

Peg Condition For each message discarded

Measurement Scope NE, Server

Recovery

If a high number of these errors occurs, then an internal routing table problem exists. It is recommended to contact *My Oracle Support (MOS)* for assistance.

TxM3RLDestUnavail

Measurement Group Server MTP3 Exception

Measurement Type Simple

Measurement Dimension Single

Description The number of egress messages M3RL discarded because the RSP/Destination was Unavailable.

Collection Interval	5 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

The RSP/Destination can be unavailable when the request is received from the User Part or while M3RL is buffering messages for a rerouting or changeover/changeback procedure.

TxM3RLDestCong

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress messages M3RL discarded because the RSP/Destination's congestion level was higher than the message's priority.
Collection Interval	5 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many egress messages M3RL discarded because the RSP/Destination's congestion level was higher than the message's priority. Network Management messages have the highest message priority. User Part message priorities are determined by the SCCP layer.

TxM3RLBufOverflow

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress messages M3RL discarded because of an internal buffer overflow.
Collection Interval	5 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

1. This condition should not occur but may be caused by an unusually high setting of the T1, T3, or T6 timers. The default value is 60ms but the user has the ability to set them as high as 2000ms. You can view and modify the current M3RL timer values via the GUI under **SS7/Sigtran** > **Configuration** > **MTP3 Options**.

2. An internal overflow condition may occur if the IP network is unstable causing M3RL to invoke multiple Changeover/Changeback procedures as links fail and recover. Verify that IP network connectivity exists between the MP server and the adjacent servers.
3. Check the event history logs for additional SS7 events or alarms from this MP server.
4. Verify that the adjacent server is not under maintenance.
5. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxM3RLInvalidDPC

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	This value provides a measure of how many ingress messages are discarded because the DPC was not a True Point Code (TPC) or Capability Point Code (CPC) configured for the MP.
Collection Interval	
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

1. From the GUI main menu under **SS7/Sigtran** > **Configuration** > **Link Sets** verify that the LSP Point Code field is set to **All** if signaling can arrive for either CPC or TPC on this link set.
2. If this measurement is large, it may indicate a routing inconsistency between STP/SG and the MP. You can view the point codes of the MP from **SS7/Sigtran** > **Configuration** > **Local Signaling Points**.

RxM3RLInvalidSI

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	This value provides a measure of how many ingress messages M3RL discarded because the Service Indicator received was not **0** (SNM) or **3** (SCCP).
Collection Interval	5 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This type of failure should never occur and usually indicates that the routing in the STP/SG or originator of the message is incorrect.

RxM3RLInvalidNI

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	This value provides a measure of how many ingress messages M3RL discarded because the Network Indicator received was the same value configured for the MP.
Collection Interval	5 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

If this measurement is large, it may indicate a routing inconsistency between the STP/SG and the MP. The NI values for the MP can be viewed via the GUI main menu under **SS7/Sigtran** > **Configuration** > **Local Signaling Points**. See the **SS7 Domain** column.

RxM3RLBufOverflow

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	This value provides a measure of how many ingress messages M3RL discarded because of an internal buffer overflow.
Collection Interval	5 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This should never occur unless the MP is experiencing severe overload conditions and SCCP is unable to service its event queue.

M3RLStackQueueFull

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages that were discarded because the M3RL Stack Event Queue was full. This measurement is

	primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	5 min
Peg Condition	For Each M3RL Stack Event Queue message is discarded
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

M3RLNetMgtQueueFull

Measurement Group	Server MTP3 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of M3RL network management messages (SI=0) that were discarded because the M3RL Network Management Event Queue was full. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	5 min
Peg Condition	Each time an M3RL Network Management Even Queue message is discarded
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Server MTP3 Performance measurements

Table 87: Server MTP3 Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxM3RLDataMsgs	Egress M3RL DATA Messages (at M3RL->M3UA interface). This measurement includes SCMG messages (which are DATA to the M3RL layer), but does not include SNM messages.	5 min
RxM3RLDataMsgs	Ingress M3RL DATA Messages (at M3RL->M3UA interface). This measurement includes SCMG messages (which are DATA to the M3RL layer), but does not include SSNM messages.	5 min
M3RLStackQueuePeak	Peak M3RL Stack Event Queue utilization (0-100%) measured during the collection interval	5 min
M3RLStackQueueAvg	Average M3RL Stack Event Queue utilization (0-100%) measured during the collection interval.	5 min
M3RLNetMgtQueuePeak	Peak M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval	5 min
M3RLNetMgtQueueAvg	Average M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval	5 min

TxM3RLDataMsgs

Measurement Group Server MTP3 Performance

Measurement Type Simple

Measurement Dimension Single

Description This value provides a measure of how many egress DATA messages are sent from M3RL to M3UA. This measurement includes SCMG messages (which are DATA to the M3RL layer), but does not include SNM messages.

Collection Interval 5 min

Peg Condition This counter is pegged each time a M3RL DATA message is sent to M3UA. This counter includes SCMG messages (which are DATA to the M3RL layer), but does not include SNM messages.

Measurement Scope NE, Server

Recovery

No action required.

RxM3RLDataMsgs

Measurement Group	Server MTP3 Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	This value provides a measure of how many ingress DATA messages M3RL is processing from the network. This measurement includes SCMG messages (which are DATA to the M3RL layer), but does not include SSNM messages.
Collection Interval	5 min
Peg Condition	This counter is pegged each time a M3RL DATA message is receive at M3RL from M3UA. This counter includes SCMG messages (which are DATA to the M3RL layer), but does not include SSNM messages.
Measurement Scope	NE, Server

Recovery

No action required.

M3RLStackQueuePeak

Measurement Group	Server MTP3 Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak M3RL Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	5 min
Peg Condition	The maximum M3RL Stack Event Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

M3RLStackQueueAvg

Measurement Group	Server MTP3 Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average M3RL Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	5 min
Peg Condition	The average of all M3RL Stack Event Queue utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

M3RLNetMgtQueuePeak

Measurement Group	Server MTP3 Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	5 min
Peg Condition	The maximum M3RL Network Management Event Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.

3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

M3RLNetMgtQueueAvg

Measurement Group	Server MTP3 Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	5 min
Peg Condition	The average of all M3RL Network Management Event Queue utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Server Resource Usage measurements

Table 88: Server Resource Usage Measurement Report Fields

Measurement Tag	Description	Collection Interval
SS7ProcessPeak	Peak SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 process is responsible for all SS7-related processing.	5 min
SS7ProcessAvg	Average SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 process is responsible for all SS7-related processing.	5 min
SS7RxMsgRatePeak	Peak Ingress Message Rate (in messages per second) measured during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.	5 min

Measurement Tag	Description	Collection Interval
SS7RxMsgRateAvg	Average Ingress Message Rate (messages per second) during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.	5 min
ITUPDUUtilPeak	The peak ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
ITUPDUUtilAvg	The average ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
ANSIPDUUtilPeak	The peak ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
ANSIPDUUtilAvg	The average ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.	5 min

SS7ProcessPeak

Measurement Group	Server Resource Usage
Measurement Type	Max
Measurement Dimension	Single
Description	The peak SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 Process is responsible for all SS7-related processing.
Collection Interval	5 min
Peg Condition	The maximum SS7 Process CPU utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing misconfiguration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SS7ProcessAvg

Measurement Group	Server Resource Usage
Measurement Type	Average

Measurement Dimension	Single
Description	The average SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 process is responsible for all SS7-related processing.
Collection Interval	5 min
Peg Condition	The average of all SS7 Process CPU utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing misconfiguration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SS7RxMsgRatePeak

Measurement Group	Server Resource Usage
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Ingress Message Rate (in messages per second) measured during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.
Collection Interval	5 min
Peg Condition	The maximum Ingress Message Rate (messages per second) sample taken during the collection interval
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing mis-configuration problem may exist
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SS7RxMsgRateAvg

Measurement Group	Server Resource Usage
Measurement Type	Max
Measurement Dimension	Single
Description	The average Ingress Message Rate (messages per second) during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.
Collection Interval	5 min
Peg Condition	The average of all Ingress Message Rate samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing mis-configuration problem may exist.
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

ItuiPDUUtilPeak

Measurement Group	Server Resource Usage
Measurement Type	Max
Measurement Dimension	Single
Description	The peak ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum SS7 ITUI/ITUN PDU Buffer Pool utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. ITUI PDU is allocated to each ITUI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.

2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

ITUPDUUtilAvg

Measurement Group	Server Resource Usage
Measurement Type	Average
Measurement Dimension	Single
Description	The average ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all SS7 ITUI/ITUN PDU Buffer Pool utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. ITUI PDU is allocated to each ITUI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.
2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

ANSIPDUUtilPeak

Measurement ID	9243
Measurement Group	Server Resource Usage
Measurement Type	Max
Measurement Dimension	Single

Description	The peak ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The maximum ANSI PDU buffer pool utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. ANSI PDU is allocated to each ANSI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.
2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

AnsiPDUUtilAvg

Measurement ID	9244
Measurement Group	Server Resource Usage
Measurement Type	Average
Measurement Dimension	Single
Description	The average ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.
Collection Interval	5 min
Peg Condition	The average of all ANSI PDU buffer pool utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. ANSI PDU is allocated to each ANSI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.
2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress

Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.

3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Server SCCP Exception measurements

Table 89: Server SCCP Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvError	Number of error log events.	30 min
EvVital	Number of vital log events.	30 min
RxSCCPInvalidDPC	Number of ingress messages SCCP discarded because the DPC is not the TPC or CPC of an MP for an ingress SCCP message.	30 min
RxSCCPInvalidSSN	Number of ingress messages SCCP discarded because the CdPA SSN or affected SSN is missing/invalid for an ingress SCCP message.	30 min
RxSCCPInvalidMsg	Number of ingress messages SCCP discarded because the Message Type is not currently supported. **Note:** Only the following connectionless message types are supported: UDT, XUDT, UDTS, and XUDTS. Valid SCMG Message Types: SSA, SSP, SST.	30 min
RxSCCPInvalidHop	Number of ingress messages SCCP discarded because of a Hop Counter violation associated with CdPA `RI=route on GT`.	30 min
RxSCCPInvalidClass	Number of ingress messages SCCP discarded because of an invalid protocol class. Note: Only classes 0 and 1 are supported.	30 min
RxSCCPInvalidGTI	Number of ingress messages SCCP discarded because an invalid Global Title Indicator (GTI) value was received. This only applies to messages received with `RI=route on GT`. **Note:** GTI=0 is invalid. (Applications using AWPSS7 may impose further limitations on GTI values. For example, EXHR supports: only	30 min

Measurement Tag	Description	Collection Interval
	GTI=2 for ANSI, only GTI=2 and GTI=4 for ITU).	
RxMPCongestion	Number of ingress SCCP messages that were discarded because of Local MP Congestion.	30 min
RxMaxTpsExceeded	Number of ingress SCCP messages that were discarded because of the Local MP Maximum TPS limit.	30 min
TxSCCPCongestion	Number of egress messages SCCP discarded because the RSP/Destination's congestion level was higher than the message's priority.	30 min
TxSCCPInvalidDPC	Number of egress messages SCCP discarded because the RSP/DPC is missing or invalid for an egress SCCP message.	30 min
TxSCCPInvalidSSN	Number of egress messages SCCP discarded because the remote SSN is missing or invalid for an egress SCCP message.	30 min
SCCPStackQueueFull	Number of ingress SCCP messages that were discarded because the SCCP Stack Event Queue was full.	30 min
TxSCCPUnavailDPC	RSP/affected DPC unavailable for an egress SCCP message.	30 min
TxSCCPUnknownDPC	RSP/affected DPC unknown (unequipped) for an egress SCCP message.	30 min
TxSCCPUnavailSSN	Remote/affected SSN unavailable for an egress SCCP message.	30 min
TxSCCPUnknownSSN	Remote/affected SSN unknown (unequipped) for an egress SCCP message.	30 min
TxSCCPInvUserMsgs	Invalid N-UnitDatareq received from the Local SCCP User/application.	30 min
RxSCCPUnavailSSN	Messages received for a prohibited Local/Affected SSN.	30 min
RxSCCPUnknownSSN	Messages received for an unequipped/unknown Local/Affected SSN.	30 min
SCMGErrors	Number of ingress/egress malformed or unsupported messages.	30 min
SCCPGTTFailure	Default action for ri=rt-on-gttmessages from the SS7 stack.	30 min

EvError

Measurement ID	9901
Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of error trace conditions. This indicates that an expected but abnormal path was taken in the software, which warrants further investigation. By default, error tracing is disabled. Non-zero values in this measurement indicate that something is occurring that would have generated an error trace, were error tracing enabled. These error trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events.
Collection Interval	
Peg Condition	30 min
Measurement Scope	NE, Server

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if any unexpected non-zero values in this measurement occur.

EvVital

Measurement ID	9900
Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of vital trace conditions encountered. A vital trace indicates that an unexpected path was taken in the software, which warrants further investigation. These vital trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events. During application start-up and shutdown, vital traces are used to show details that can aid in debugging of initialization and shutdown problems. These traces are always enabled and cannot be turned off. It is a VITAL error condition for any other instance.
Collection Interval	
Peg Condition	30 min
Measurement Scope	NE, Server

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if any unexpected non-zero values in this measurement occur.

RxMaxTpsExceeded

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress SCCP messages that were discarded because of the Local MP Maximum TPS limit.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

1. The MP is approaching or exceeding its engineered traffic handling capacity. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from the GUI main menu under **Status & Manage** > **Server Status**.
2. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from the GUI main menu under **Status & Manage** > **KPIs**. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. You can monitor the ingress traffic rate of each MP from the GUI main menu under **Status & Manage** > **KPIs**. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The SS7 process may be experiencing problems. Examine the alarm log from the GUI main menu under **Alarms & Events**.
5. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxMPCongestion

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress SCCP messages that were discarded because of local MP congestion.
Collection Interval	30 min
Peg Condition	For each message discarded

Measurement Scope	NE, Server

Recovery

1. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from the GUI main menu under **Status & Control** > **Server Status**.
2. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from the GUI main menu under **Status & Control** > **KPIs**. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. You can monitor the ingress traffic rate of each MP from the GUI main menu under **Status & Control** > **KPIs**. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The SS7 process may be experiencing problems. The alarm log should be examined from the GUI main menu under **Alarms & Events**.
5. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxSCCPInvalidDPC

Measurement ID	9055
Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress messages SCCP discarded because the MTP point code was present but was not a TPC or CPC for the signaling standard of the message.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This count shows how many ingress messages SCCP discarded because the point code received in the MTP was not encoded correctly (same as TPC or CPC) for the signaling standard of the message. If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured. It is recommended to contact *My Oracle Support (MOS)* for assistance.

RxSCCPInvalidSSN

Measurement ID	9056
Measurement Group	Server SCCP Exception
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of ingress messages SCCP discarded because the CdPA/CgPA SSN was present but had an invalid value (SSN< 1 or SSN >254).
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured.

RxSCCPInvalidMsg

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress messages SCCP discarded because the message type is not currently supported. **Note:** Only the following connectionless message types are supported: UDT, XUDT, UDTS, and XUDTS. Valid SCMG message types are SSA, SSP, and SST.
Collection Interval	30 min
Peg Condition	For each message discarded for an invalid Message Type
Measurement Scope	NE, Server

Recovery

If a high number of these errors occurs, then the originator of the message may be misconfigured.

RxSCCPInvalidHop

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress messages SCCP discarded because of a Hop Counter violation associated with CdPA `RI=route on GT`.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

If this error occurs, then either the originator of the message is setting the initial value too low or the STPs are rerouting the message too many times due to a possible STP routing misconfiguration. Contact *My Oracle Support (MOS)* for assistance.

RxSCCPInvalidClass

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress messages SCCP discarded because of an invalid protocol class. **Note:** Only classes 0 and 1 are supported.
Collection Interval	30 min
Peg Condition	For each message discarded for an invalid Protocol Class
Measurement Scope	NE, Server

Recovery

If a high number of these errors occurs, then the originator of the message may be misconfigured or the network is misconfigured causing mis-routing of messages.

RxSCCPInvalidGTI

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress messages SCCP discarded because an invalid Global Title Indicator (GTI) value was received. This only applies to messages received with `RI=route on GT`. **Note:** `GTI=0` is invalid.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

If a high number of these errors occurs, then the originator of the message may be misconfigured.

RxSCCPReassFAIL

Measurement Group	Server SCCP Exception

Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times the reassembly procedure failed.
Collection Interval	30 min
Peg Condition	For each reassembly failure for ingress segmented XUDT message received from network
Measurement Scope	Network, NE, Server

Recovery

1. This value provides a measure of number of reassembly procedure failures encountered during the reporting interval.
2. Check for any related additional Events or Alarms from the server.

RxSCCPReassInternalFail

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of reassembly procedure failures due to internal error or resource limitation.
Collection Interval	30 min
Peg Condition	N/A
Measurement Scope	Network, NE, Server

Recovery

1. This value provides a measure of number of reassembly procedure failures encountered due to errors encountered on server, during the reporting interval.
2. Non-zero value for this measurement tag represents resource usage issues on the server. Check for any related additional Events or Alarms from the server.

RxSCCPReassOOSFail

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of reassembly procedure failures due to out-of-sequence segments received from network.
Collection Interval	30 min
Peg Condition	For each ongoing reassembly procedure failure as a result of out of order arrival of remaining segments.

Measurement Scope	Network, NE, Server

Recovery

1. This value provides a measure of number of reassembly procedure failures encountered due to "out of order arrival of remaining segments in a reassembly procedure" reason, during the reporting interval.
2. Non-zero value for this measurement tag represents sequencing issues in packet arrival from network or any other routing error or delays in network or on server. Check for any related additional Events or Alarms from the server.

RxSCCPReassTExp

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of reassembly procedure failures due to reassembly timer expiry.
Collection Interval	30 min
Peg Condition	For each reassembly procedure failures due to reassembly timer expiry
Measurement Scope	Network, NE, Server

Recovery

1. This value provides a measure of number of reassembly procedure failures encountered due to "Reassembly Timer Expiry" reason, during the reporting interval.
2. Non-zero value for this measurement tag represents latency issues in packet arrival from network or any other delay on server resulting in reassembly timer expiry. Check for any related additional Events or Alarms from the server.

RxSCCPSegmentOOS

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of XUDT segments received out-of-sequence from network.
Collection Interval	30 min
Peg Condition	On received XUDT segments with F bit set as 0 and received segments could not be attached to any open reassembly procedure (i.e., reassembly procedure was not started for this and no key found to associate the segments to a in-process reassembly)
Measurement Scope	Network, NE, Server

Recovery

1. This value provides a measure of number of segmented XUDT messages received with sequence delivery option but arrived out of sequence at SCCP Layer, during the reporting interval.
2. For these out of sequence received XUDT segments, there is no ongoing reassembly procedure to attach these segments.
3. Non-zero value for this measurement tag represents in-sequence routing or reassembly key uniqueness issue. Check for any related additional Events or Alarms from the server.

RxSCCPSgmntsPartReassFAIL

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of partially reassembled segments discarded due to any errors.
Collection Interval	30 min
Peg Condition	For each segmented XUDT message that was buffered and discarded due to reassembly procedure failure
Measurement Scope	Network, NE, Server

Recovery

This value provides cumulative measure of ingress segmented XUDT messages which were buffered but discarded due to reassembly procedure failure.

RxSCCPUnavailSSN

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress messages (RI=SSN) SCCP discarded because the CdPA SSN (Local SSN for MPs TPC) was manually disabled.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many ingress (RI=SSN) messages SCCP discarded because the affected Local Subsystem status was manually disabled. The Status of Local Subsystems (Local SCCP Users, LSUs) for a Local Signaling Point can be viewed via the GUI Main Menu: **SS7/SIGTRAN** > **Maintenance** > **Local SCCP Users**.

RxSCCPUnknownSSN

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress messages (RI=SSN) SCCP discarded because the CdPA SSN (Local SSN for MPs TPC) is not configured for the MTP DPC's signaling domain
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many ingress (RI=SSN) messages SCCP discarded because the affected Local Subsystem is not configured for the MTP DPC's signaling domain. The Local Subsystems (Local SCCP User, LSUs) for a Local Signaling Point can be configured via the GUI Main Menu: **SS7/SIGTRAN** > **Configuration** > **Local SCCP Users [Insert]**.

RxSCCPXudtInvSgmnt

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of received XUDT segments resulted in protocol violation decode error.
Collection Interval	30 min
Peg Condition	For protocol decoding errors while parsing ingress segmented XUDT
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of malformed segmented XUDT messages received from the network.

SCCPGTTFailure

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Count of SCCP GTT Failures due to default GTT handling in SS7Stack.
Collection Interval	30 min

Peg Condition	Default GTT Processing by SS7 Stack, when Application did not implement "rt-on-gt" message handling
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many "ri=rt-ongt" messages were subject to default Global Title Translation processing. This can occur when Application is using SS7 Stack for processing only "rt-on-ssn" messages OR "rt-on-gt" message handling is not implemented in Application.

SCCPStackQueueFull

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress SCCP messages that were discarded because the SCCP Stack Event Queue was full.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP are significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SCMGErrors

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of ingress/egress malformed or unsupported messages.
Collection Interval	30 min
Peg Condition	For each ingress/egress malformed or unsupported SCCP Management message
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many malformed or unsupported SCCP management messages were discarded. Supported SCMG messages are SST, SSP and SSA. Any other SCCP Management message is pegged under this tag.

TxSCCPCongestion

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress messages SCCP discarded because the RSP/Destination's congestion level was higher than the message's priority.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

You can view the remote RSPs/Destinations to SCCP and their congestion status from the GUI main menu under **SS7/Sigtran** > **Maintenance** > **Remote MTP3 Users**.

TxSCCPInvUserMsgs

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	SCCP User submitted an Invalid/malformed/unsupported message for egress routing (SCCP User->SCCP N-UnitDataReq)
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many egress SCCP User messages encountered validation failure on SCCP. If a high number of these errors occur, then it indicates an encoding error at the originator or the originator of the message may be mis-configured.

TxSCCPInvalidDPC

Measurement ID	9051
Measurement Group	Server SCCP Exception
Measurement Type	Simple

Measurement Dimension	Single
Description	The number of egress messages SCCP discarded because the CdPA signaling point code is present but is not valid for the signaling standard of the message.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured.

TxSCCPInvalidSSN

Measurement ID	9052
Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress messages SCCP discarded because the CdPA/CgPA SSN was present but had an invalid value (SSN< 1 or SSN >254).
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured.

TxSCCPSegmentFAIL

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times segmentation procedure failed.
Collection Interval	30 min
Peg Condition	On failure in completion of segmentation procedure for each large egress user data message.
Measurement Scope	Network, NE, Server

Recovery

1. This value provides a measure of number of segmentation procedure completion failures for large egress user data messages. Segmentation Error Procedure is executed on each such failure.
2. Check for any related additional Events or Alarms from the server.

TxSCCPUnavailDPC

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress messages SCCP discarded because the affected DPC status was marked prohibited/unavailable.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many egress messages SCCP discarded because the RSP/Destination status was paused / prohibited at SCCP. Point code status is received from M3RL via the MTP-PAUSE and MTP-RESUME indications. The remote RSPs/Destinations known to SCCP and their status can be viewed via the GUI Main Menu: **SS7/SIGTRAN** > **Maintenance** > **Remote Signaling Points**.

TxSCCPUnavailSSN

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress messages SCCP discarded because the CdPA or Affected SSN was either marked prohibited/unavailable.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many egress messages SCCP discarded because the Remote Subsystem status was Prohibited. Subsystem status is received from M3RL via the SS-STATUS indications or via SCMG SSA and SSP messages. The remote subsystems (RMUs) known to SCCP and their status can be viewed via the GUI Main Menu: **SS7/SIGTRAN** > **Maintenance** > **Remote MTP3 Users**.

TxSCCPUnknownDPC

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress messages SCCP discarded because the affected DPC in message is not configured or is unknown.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many egress messages SCCP discarded because the RSP or affected DPC in the message is not configured and is unknown at SCCP. The remote RSPs/affected Destinations known to SCCP and their status can be viewed via the GUI Main Menu: **SS7/SIGTRAN** > **Maintenance** > **Remote Signaling Points**.

TxSCCPUnknownSSN

Measurement Group	Server SCCP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Number of egress messages SCCP discarded because the CdPA or affected SSN was unknown.
Collection Interval	30 min
Peg Condition	For each message discarded
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many egress messages SCCP discarded because the Subsystem was unknown to SCCP. The remote subsystems (RMUs) can be configured from the GUI Main Menu: **SS7/SIGTRAN** > **Configuration** > **Remote MTP3 Users** and their status can be viewed via the GUI Main Menu: **SS7/SIGTRAN** > **Maintenance** > **Remote MTP3 Users**.

Server SCCP Performance measurements

Table 90: Server SCCP Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TxSCCPMsgs	Egress Messages Sent (to M3RL)	30 min
RxSCCPMsgs	Ingress Messages Received (from M3RL)	30 min
TxSCCPUserMsgs	Valid N-UnitDatareq generated by local SCCP User and processed by SCCP	30 min
TxSCMGMsgs	Number of valid egress SCMG messages	30 min
RxSCCPUserMsgs	UDT/XUDT received and N-UnitDataInd Event delivered to Local SCCP User	30 min
RxSCCPUserNoticeMsgs	UDTS/XUDTS received and NNotice-Ind sent to Local SCCP User	30 min
RxSCMGMsgs	All ingress SCMG messages (Includes, SST, SSP, SSA, MTP-Status, MTP-Pause, SS-Status)	30 min
SCCPStackQueuePeak	SCCP Stack Event Queue Peak Utilization	30 min
SCCPStackQueueAvg	SCCP Stack Event Queue Average Utilization	30 min
TxSCCPLargeMsgs	Number of large egress user data messages for segmentation	30 min
TxSCCPSegmentsPerMsg	Number of segments created for each large egress user data message	30 min
TxSCCPSegmentSUCC	Number of times segmentation procedure completed successfully	30 min
RxSCCPSgmntXudtMsgs	Number of ingress segmented XUDT messages received from network	30 min
RxSCCPReassSUCC	Number of times reassembly procedure completed successfully	30 min
RxSCCPSgmntReassPerMsg	Number of segments reassembled to create one large ingress user data message [Arrayed - Bucketed]	30 min
RxSCCPRtGtFrwdAppl	Number of Rt On Gt Messages forwarded to Local Application	30 min
RxSCCPRtGtXudtSgmnt	Number of Rt on Gt segmented XUDT messages received from network	30 min

Measurement Tag	Description	Collection Interval
RxSCCPRtSsnXudtSgmnt	Number of Rt on Ssn segmented XUDT messages received from network	30 min
RxSCCPSegmentSrvcMsg	Number of Segmented XUDTS messages received from network	30 min
RxSCCPSgmntsReassSUCC	Number of XUDT segments reassembled successfully	30 min

TxSCCPMsgs

Measurement Group Server SCCP Performance

Measurement Type Simple

Measurement Dimension Single

Description Egress messages sent by SCCP to M3RL (SCCP->M3RL MTP-TRANSFER request). This value provides a measure of how many egress SCCP messages are being processed by the MP server.

Collection Interval 30 min

Peg Condition For each message sent to M3RL

Measurement Scope NE, Server

Recovery

No action required.

RxSCCPMsgs

Measurement Group Server SCCP Performance

Measurement Type Simple

Measurement Dimension Single

Description Ingress messages received by SCCP from M3RL (M3RL> SCCP MTP TRANSFER indication).

Collection Interval 30 min

Peg Condition For each message received from M3RL

Measurement Scope NE, Server

Recovery

No action required.

TxSCCPUserMsgs

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Egress messages sent by SCCP User to SCCP to M3RL (SCCPUser-> SCCP N-UnitDataReq->M3RL MTP-TRANSFER request)
Collection Interval	30 min
Peg Condition	For each message sent to M3RL
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many egress SCCP User messages are being processed by the MP server.

TxSCMGMsgs

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of valid egress SCMG messages.
Collection Interval	30 min
Peg Condition	For each valid message generated by SCMG
Measurement Scope	NE, Server

Recovery

This value provides a measure of egress SCCP Management messages This could be due to local or remote SCCP/SCCP Users status. The Status of Local or Remote Subsystems can be viewed via the GUI Main Menu: **SS7/SIGTRAN** > **Maintenance** > **Local SCCP Users** or **SS7/SIGTRAN** > **Maintenance** > **Remote MTP3 Users**.

TxMsgRatePeak

Measurement Group	Server SCCP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak Ingress Message Rate (in messages per second) measured during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.

Collection Interval	30 min
Peg Condition	The maximum Ingress Message Rate (messages per second) sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing misconfiguration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxMsgRateAvg

Measurement Group	Server SCCP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average Egress Message Rate (messages per second) during the collection interval.
Collection Interval	30 min
Peg Condition	The average of all Ingress Message Rate samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing misconfiguration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxSCCPUserMsgs

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Ingress SCCP UDT/XUDT messages sent by SCCP to Configured and available SCCP Users using a local SSN (SCCP->SCCP User N-UnitDataInd)

Collection Interval	30 min
Peg Condition	For each UDT/XUDT message received for SCCP user and was delivered to SCCP user.
Measurement Scope	NE, Server

Recovery

This value provides a measure of how many ingress SCCP User (RI=SSN) messages are being forwarded to SCCP User application hosted by the MP server.

RxSCCPUserNoticeMsgs

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	Ingress SCCP UDTS/XUDTS (RI=SSN) messages converted into N-Notice-Ind by SCCP and sent to the configured and available SCCP Users using a local SSN (SCCP->SCCP User N-NoticeInd)
Collection Interval	30 min
Peg Condition	For each UDTs/XUDTs message received for SCCP user and a notification was delivered to SCCP user
Measurement Scope	NE, Server

Recovery

1. This value provides a measure of how many ingress SCCP UDTS/XUDTS (RI=SSN) messages were received and converted into N-Notice-Ind and forwarded to SCCP User application hosted by the MP server.
2. If a high number of these errors occur, then it indicates the remote SCCP/SCCP Application could not process the message as expected and resulted in executing sccp error handling procedure. It's normally associated with an event/alarm condition. If a high number of these errors occur, then check the event history under **Main Menu** > **Alarms & Events** > **View History**.

RxSCMGMsgs

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of valid ingress SCMG messages.
Collection Interval	30 min
Peg Condition	For each valid message received for SCMG
Measurement Scope	NE, Server

Recovery

This value provides a measure of ingress SCCP Management messages. This could be due to local or remote SCCP/SCCP Users status. The Status of Local or Remote Subsystems can be viewed via the GUI Main Menu **SS7/SIGTRAN** > **Maintenance** > **Local SCCP Users** or **SS7/SIGTRAN** > **Maintenance** > **Remote MTP3 Users**.

SCCPStackQueuePeak

Measurement Group	Server SCCP Performance
Measurement Type	Max
Measurement Dimension	Single
Description	The peak SCCP Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	30 min
Peg Condition	The maximum SCCP Stack Event Queue utilization sample taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP are significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SCCPStackQueueAvg

Measurement Group	Server SCCP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average SCCP Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
Collection Interval	30 min
Peg Condition	The average of all SCCP Stack Event Queue utilization samples taken during the collection interval.
Measurement Scope	NE, Server

Recovery

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxSCCPLargeMsgs

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress large user data messages for segmentation.
Collection Interval	30 min
Peg Condition	For each large user data message submitted by SCCP User for egress routing.
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of how many large user data messages are submitted to SCCP layer for egress routing during the reporting interval. This measurement peg value divided by the interval yields the average rate of large egress user data messages for the server.

TxSCCPSegmentsPerMsg

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed-Bucketed (Index on number of segments created for each larger egress user data message)
Description	The number of segments created for each large egress user data message.
Collection Interval	30 min
Peg Condition	When the segmentation procedure is completed on each large egress user data packet, using “number of segments” as index.
Measurement Scope	Network, NE, Server

Recovery

1. Values in this arrayed measurement provides a measure of number of XUDT messages created each time a large user data messages is segmented by SCCP layer.
2. This arrayed measurement can be used for heuristics on segments created during the reporting interval and the SS7 traffic rate impact due to large egress user data size traffic.

TxSCCPSegmentSUCC

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of times segmentation procedure completed successfully.
Collection Interval	30 min
Peg Condition	On successful completion of segmentation procedure for each large egress user data message (i.e. user data length is greater than SCCP Option Configured value).
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of number of successful segmentation procedure completion for large egress user data messages are successfully segmented and corresponding XUDT messages are forwarded by SCCP layer for egress routing during the reporting interval.

RxSCCPSgmntXudtMsgs

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress segmented XUDT messages received from network.
Collection Interval	30 min
Peg Condition	For each segmented XUDT message received from network.
Measurement Scope	Network, NE, Server

Recovery

1. This value provides a measure of how many segmented XUDT messages are received by SCCP layer during the reporting interval. SCCP will execute reassembly procedure for each such received message.
2. This measurement peg value divided by the interval yields the average rate of new segmented XUDT messages received from the network.

RxSCCPReassSUCC

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of times reassembly procedure successfully completed.
Collection Interval	30 min
Peg Condition	On successful completion of reassembly procedure using a number of ingress segmented XUDT messages.
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of number of successful reassembly procedure (using a number of ingress segmented XUDT messages) completion during the reporting interval. The reassembled user data is forwarded as single packet to SCCP User.

RxSCCPSgmntReassPerMsg

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed-Bucketed (Index on number of segments reassembled)
Description	The number of segments reassembled to create one large ingress user data message.
Collection Interval	30 min
Peg Condition	This is an arrayed measurement with “number of XUDT segments assembled” as index. Peg this measurement using “number of XUDT segments assembled” as index, when reassembly procedure is completed using more than one ingress segmented XUDT message.
Measurement Scope	Network, NE, Server

Recovery

1. Values in this arrayed measurement provides a measure of number of segmented XUDT messages were reassembled for each reassembly procedure before forwarding a large user data messages to SCCP User.
2. This arrayed measurement can be used for heuristics on number of segments network used for segmenting large message during the reporting interval and the SS7 traffic rate impact due to segmented XUDT messages on overall SCCP processing rate.

RxSCCPRtGtFrwdAppl

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Rt On Gt Messages forwarded to Local Application.
Collection Interval	30 min

Peg Condition	N/A
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of number of messages received with CDPA RI=GT and are forwarded to Local Application due to configured SCCP Option.

RxSCCPRtGtXudtSgmnt

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Rt on Gt segmented XUDT messages received from network
Collection Interval	30 min
Peg Condition	N/A
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of number of Rt on Gt segmented XUDT messages received from the network.

RxSCCPRtSsnXudtSgmnt

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of Rt on Ssn segmented XUDT messages received from network.
Collection Interval	30 min
Peg Condition	N/A
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of number of Route on SSN segmented XUDT messages received from the network.

RxSCCPSegmentSrvcMsg

Measurement Group	Server SCCP Performance
Measurement Type	Single

Measurement Dimension	Simple
Description	The number of Segmented XUDTS messages received from network.
Collection Interval	30 min
Peg Condition	For each segmented XUDTS messages received from network
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of number of segmented XUDTS messages received from the network.

RxSCCPSgmntsReassSUCC

Measurement Group	Server SCCP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of XUDT segments reassembled successfully.
Collection Interval	30 min
Peg Condition	For each well-formed ingress segmented XUDT message resulting in a successful reassembly procedure
Measurement Scope	Network, NE, Server

Recovery

This value provides a measure of well-formed ingress segmented XUDT messages that are reassembled successfully.

Server TCAP Exception measurements

Table 91: Server TCAP Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
TCAPComponentTblFull	Operations discarded due to full QueuedComponent array.	30 min
TCAPRejTcuErr	Operations rejected by TCAP due to TC User error (L-Reject Ind).	30 min
TCAPRejPeerErr	Operations rejected by TCAP due to remote TCAP peer error (not counting timeouts – L-Reject Ind).	30 min
TCAPRejTcu	Operations rejected by TC User (U-Reject Req).	30 min

Measurement Tag	Description	Collection Interval
TCAPRejPeer	Operations rejected by peer (R-Reject Ind + U-Reject Ind).	30 min
TCAPRetErrTcu	Operations that caused return error response to peer (U-Error Req).	30 min
TCAPRetErrPeer	Operations that received return error response from peer (U-Error Ind).	30 min
TCAPOpTimeout	Operations that timed out (invocation timer expiry – egress only L-Cancel Ind).	30 min
TCAPOpCancelTcu	Operations cancelled by TC User (U-Cancel Req).	30 min
TCAPStackQueueFull	Stack event discarded due to TCAP task queue full.	30 min
TCAPDialogueTblFull	Dialogue discarded due to TcapDialogue table full.	30 min
TCAPAbrtTcuErr	Dialogues aborted by TCAP due to TC User error (not counting timeouts – P-Abort Ind).	30 min
TCAPAbrtPeerErr	Dialogues aborted by TCAP due to remote TCAP peer error (P-Abort Ind).	30 min
TCAPAbrtTcu	Dialogues aborted by TC User (U-Abort Req).	30 min
TCAPAbrtPeer	Dialogues aborted by peer (U-Abort Ind).	30 min
TCAPDialogueTimeout	Dialogues that timed out (dialogue cleanup timer expiry).	30 min
TCAPComponentQueueFull	Operations discarded due to full QueuedComponent array.	30 min
Ss7DeserializationFail	Number of MAP response message of which deserialization failed.	30 min

TCAPDialogueTimeout

Measurement Group Server TCAP Exception

Measurement Type Simple

Measurement Dimension Single

Description The number of dialogues aborted by the local TCAP due to a dialogue timeout during the reporting interval.

Note: A dialogue timer is only started if the local TCAP application sends a `Begin` message that contains no components. The purpose of the dialogue timer is to prevent stale dialogues if the message never reaches the remote TCAP peer or if the remote TCAP peer never responds.

Collection Interval	30 min
Peg Condition	Each time the Dialogue Cleanup Timer expires
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19267 - Dialogue removed by dialogue cleanup timer in the **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPAbrtPeer

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of dialogues aborted by the remote TCAP application using U-Abort during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time the tcUAbortInd function is called due to receipt of a U-Abort from the remote TCAP peer
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19269 in the GUI under **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPAbrtTcu

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of dialogues aborted by the local TCAP during the reporting interval due to a decision by the local TCAP application.
Collection Interval	30 min

Peg Condition	Each time the tcUAbortReq function is called
Measurement Scope	Network, NE, Server

Recovery

1. Look for related events in the GUI **Alarm History** log during the time period of the measurement reporting interval.
2. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPAbrtPeerErr

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of dialogues aborted by the remote TCAP application using P-Abort during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time the tcPAbortInd function is called due to a receipt of a P-Abort from the remote TCAP peer
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19264 or Event 19266 in the GUI under **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPAbrtTcuErr

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of dialogues aborted by the local TCAP during the reporting interval due to an error caused by the local TCAP application.
Collection Interval	30 min
Peg Condition	Each time the tcPAbortInd function is called due to an egress transaction, exception for abort due to the dialogue cleanup timer
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19263 or Event 19265 in the GUI under **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPDialogueTblFull

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of dialogues (both ingress and egress) discarded during the reporting interval due to the MP server's internal TCAP dialogue table being full.
Collection Interval	30 min
Peg Condition	Each time a record cannot be added to the TcapDialogue table because the table is full
Measurement Scope	Network, NE, Server

Recovery

If the TCAP dialogue internal table reaches capacity, Alarm 19272 - TCAP active dialogue utilization will be raised with critical severity. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

TCAPStackQueueFull

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress events discarded during the reporting interval due to the MP server's TCAP internal event queue being full. Events could be incoming TCAP messages or N-Notice indications from SCCP.
Collection Interval	30 min
Peg Condition	Each time an event cannot be added to the TCAP task queue because the queue is full
Measurement Scope	Network, NE, Server

Recovery

If the TCAP internal event queue reaches capacity, Alarm 19274 - TCAP stack event queue utilization will be raised with critical severity. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

TCAPOpCancelTcu

Measurement ID	9227
Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress operations that were cancelled by the local TCAP application during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time the tcUCancelReq function is called
Measurement Scope	Network, NE, Server

Recovery

1. This measurement does not necessarily indicate an error condition. Look for events that may be related during the period of the measurement reporting interval for more details.
2. It is recommended to contact *My Oracle Support (MOS)* as needed for further assistance.

TCAPOpTimeout

Measurement ID	9226
Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress operations that timed out waiting for a response from the remote TCAP peer during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time the tcLCancelInd function is called
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19268 - Operation removed by invocation time expiry in the GUI **Alarm History** during the time period covered by the measurement reporting interval.
2. This error may be caused by failure to route the message by one of the underlying layers (e.g., SCCP). Refer to the *DSR Alarms and KPIs Reference* for details about Event 19268 for information about how to proceed.

3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPRetErrPeer

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress components that resulted in a Return Error response by the remote TCAP peer during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time the tcUErrorInd function is called
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19275 - Return error from remote TCAP peer (refer to the *DSR Alarms and KPIs Reference* for details about this event) in the GUI **Alarm History** during the time period covered by the measurement reporting interval.
2. This error is likely caused by a malformed message or unexpected message that we sent to the remote TCAP peer. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPRetErrTcu

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress components that resulted in a Return Error response by the local TCAP application during the reporting interval.
Collection Interval	30 min
Peg Condition	Network, NE, Server
Measurement Scope	

Recovery

1. Look for events in the GUI **Alarm History** during the time of the measurement reporting interval for more details related to why the component was discarded.
2. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPRejPeer

Measurement ID	9223
Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress components rejected by the remote TCAP peer during the reporting interval.
Collection Interval	30 min
Peg Condition	
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19271 - Operation rejected by remote TCAP peer (refer to the *DSR Alarms and KPIs Reference* for details about this event) in the GUI **Alarm History** during the time period covered by the measurement reporting interval. This error is likely caused by a malformed message or unexpected message that we sent to the remote TCAP peer.
2. If you can locate the corresponding event, see the appropriate documentation for how to proceed.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPRejTcu

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress components rejected by the local TCAP application during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time the tcUrejectReq function is called
Measurement Scope	Network, NE, Server

Recovery

1. Look for events in the GUI **Alarm History** during the time of the measurement reporting interval for more details related to why the component was discarded.
2. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPRejPeerErr

Measurement ID	9221

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of ingress components discarded due to a component error caused by the remote TCAP peer during the reporting interval.
Collection Interval	30 min
Peg Condition	
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Events 19262 - Operation discarded due to malformed component received from remote TCAP peer or Event 19266 - Unexpected event received from remote TCAP peer (refer to the *DSR Alarms and KPIs Reference* for details about these events) in the GUI **Alarm History** during the time period covered by the measurement reporting interval. This error is likely caused by a malformed message or unexpected message from the remote TCAP peer.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPRejTcuErr

Measurement ID	9220
Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress components discarded due to a component error caused by the local TCAP application during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time the tcLRejectInd function is called for an egress component
Measurement Scope	Network, NE, Server

Recovery

1. If this measurement has a non-zero value, look for Event 19265 - Unexpected event received from local TC User (refer to the *DSR Alarms and KPIs Reference* for details about this event) in the GUI **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.

3. It is recommended to contact *My Oracle Support (MOS)* for further assistance in determining the exact cause of the failure.

TCAPComponentTblFull

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress operations discarded due to the MP server's TCAP component internal table being full during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time an Invoke component record cannot be created int he TcapComponent table because the table is full
Measurement Scope	Network, NE, Server

Recovery

If the TCAP component internal table reaches capacity, Alarm 19273 - TCAP active operation utilization will be raised with critical severity. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

Ss7DeserializationFail

Measurement Group	Server TCAP Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MAP response message of which deserialization failed.
Collection Interval	30 min
Peg Condition	
Measurement Scope	Network, NE, Server

Recovery

It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Server TCAP Performance measurements

Table 92: Server TCAP Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxTCAPDialogues	Number of ingress dialogues created (Begin Ind).	30 min
TxTCAPDialogues	Number of egress dialogues created (Begin Req).	30 min
TxTCAPOperations	Number of egress operations created (Invoke Req).	30 min
TCAPStackQueueAvg	TCAP task queue average depth.	30 min
TCAPStackQueuePeak	TCAP task queue maximum depth.	30 min
TCAPDialogueTblAvg	TcapDialogue table average size.	30 min
TCAPDialogueTblPeak	TcapDialogue table maximum size.	30 min
TCAPComponentTblAvg	TcapComponent table average size.	30 min
TCAPComponentTblPeak	TcapComponent table maximum size.	30 min

RxTCAPDialogues

Measurement Group Server TCAP Performance

Measurement Type Simple

Measurement Dimension Single

Description The number of ingress dialogues created on the MP server during the reporting interval.

Collection Interval 30 min

Peg Condition Each time a TcapDialogue table record is successfully created as a result of a Begin message from the network.

Measurement Scope Network, NE, Server

Recovery

This measurement shows the number of ingress dialogues (i.e., dialogues resulting from receipt of an ITU TCAP Begin message) created on the MP server during the reporting interval. RxTCAPDialogues divided by the reporting interval yields the average rate of ingress dialogues for the MP server.

TxTCAPDialogues

Measurement Group	Server TCAP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress dialogues created on the MP server during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time a TcapDialogue table record is successfully created as a result of a tcBeginReq call from the TC User.
Measurement Scope	Network, NE, Server

Recovery

This measurement shows the number of egress dialogues (i.e. dialogues resulting from sending an ITU TCAP Begin message) created on the MP server during the reporting interval. TxTCAPDialogues divided by the reporting interval yields the average rate of egress dialogues for the MP server.

TxTCAPOperations

Measurement Group	Server TCAP Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of egress operations created on the MP server during the reporting interval.
Collection Interval	30 min
Peg Condition	Each time a TcapComponent table record is successfully created as a result of a tcInvokeReq call from the TC User.
Measurement Scope	Network, NE, Server

Recovery

The TxTCAPOperations measurement simply shows the number of egress operations (i.e. TCAP Invokes) created on the MP server during the reporting interval. TxTCAPOperations divided by the reporting interval yields the average rate of egress operations for the MP server.

TCAPStackQueueAvg

Measurement Group	Server TCAP Performance
Measurement Type	Average
Measurement Dimension	Single

Description	The average percent utilization during the reporting interval of the MP server's TCAP internal queue used to receive messages from the SCCP layer. The number is expressed as a percentage of the maximum size.
Collection Interval	30 min
Peg Condition	This measurement is driven by the TCAPEventQueue SysMetric exactly as is done for other layers of the stack.
Measurement Scope	

Recovery

If the TCAP internal queue nears capacity, Alarm 19274 - TCAP stack event queue utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

TCAPStackQueuePeak

Measurement Group	Server TCAP Performance
Measurement Type	Minimum
Measurement Dimension	Single
Description	The peak percent utilization during the reporting interval of the MP server's TCAP internal queue used to receive messages from the SCCP layer. The number is expressed as a percentage of the maximum size.
Collection Interval	30 min
Peg Condition	This measurement is driven by the TCAPEventQueue SysMetric exactly as is done for other layers of the stack.
Measurement Scope	

Recovery

If the TCAP internal queue nears capacity, Alarm 19274 - TCAP stack event queue utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

TCAPDialogueTblAvg

Measurement Group	Server TCAP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average percent utilization during the reporting interval of the MP server's TCAP dialogue internal table used to maintain dialogue state. The number is expressed as a percentage of the maximum size.
Collection Interval	30 min

Peg Condition	This measurement is driven by the TCAPDialogueTable SysMetric exactly as is done for the event queues.
Measurement Scope	Network, NE, Server

Recovery

If the TCAP dialogue internal table nears capacity, Alarm 19272 - TCAP active dialogue utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

TCAPDialogueTblPeak

Measurement Group	Server TCAP Performance
Measurement Type	Maximum
Measurement Dimension	Single
Description	The peak percent utilization during the reporting interval of the MP server's TCAP dialogue internal table used to maintain dialogue state. The number is expressed as a percentage of the maximum size.
Collection Interval	30 min
Peg Condition	This measurement is driven by the TCAPDialogueTable SysMetric exactly as is done for the event queues.
Measurement Scope	Network, NE, Server

Recovery

If the TCAP dialogue internal table nears capacity, Alarm 19272 - TCAP active dialogue utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

TCAPComponentTblAvg

Measurement Group	Server TCAP Performance
Measurement Type	Average
Measurement Dimension	Single
Description	The average percent utilization during the reporting interval of the MP server's TCAP component internal table used to maintain operation state. The number is expressed as a percentage of the maximum size.
Collection Interval	30 min
Peg Condition	This measurement is driven by the TCAP ComponentTable SysMetric exactly as is done for the event queues.
Measurement Scope	Network, NE, Server

Recovery

If the TCAP component internal table nears capacity, Alarm 19273 - TCAP active operation utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

TCAPComponentTblPeak

Measurement Group	Server TCAP Performance
Measurement Type	Maximum
Measurement Dimension	Single
Description	The peak percent utilization during the reporting interval of the MP server's TCAP component internal table used to maintain operation state. The number is expressed as a percentage of the maximum size.
Collection Interval	30 min
Peg Condition	This measurement is driven by the TCAP ComponentTable SysMetric exactly as is done for the event queues.
Measurement Scope	Network, NE, Server

Recovery

If the TCAP component internal table nears capacity, Alarm 19273 - TCAP active operation utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

SS7 Exception Measurements

Table 93: SS7 Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
Ss7TxFailedCA	Number of MAP response messages failed to transfer from SS7 TCAP layer to ComAgent layer.	30 min
Ss7TxMpUnkDiscard	Unknown SS7 MP ID. Failed to transfer MAP response message. MP ID from origination transaction ID cannot be mapped to any SS7 MP in topology.	30 min

Ss7TxFailedCA

Measurement Group	SS7 Exception
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of MAP response messages successfully transferred from SS7 TCAP layer to ComAgent layer
Collection Interval	30 min
Peg Condition	When TCAP layer successfully forwards message to Communication Agent
Measurement Scope	Network, NE, Server

Recovery

Values in this measurement provide a measure of number of TCAP messages send failed to Communication Agent. Non-zero value for this measurement tag represents resource usage issues on the server. Check for any related additional Events or Alarms from the server.

Ss7TxMpUnkDiscard

Measurement Group	SS7 Exception
Measurement Type	Simple
Measurement Dimension	Single
Description	Unknown SS7 MP ID. Failed to transfer MAP response message. MP ID from origination transaction IDcan not be mapped to any SS7 MP in topology.
Collection Interval	30 min
Peg Condition	When TCAP layer fails to find other XG SS7 MP information in database
Measurement Scope	Network, NE, Server

Recovery

Values in this measurement provide a measure of number of TCAP messages discarded by TCAP layer when it is not able to find the XG SS7 MP information. Non-zero value for this measurement tag represents resource usage issues on the server. Check for any related additional Events or Alarms from the server.

SS7 Performance Measurements

Table 94: SS7 Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
Ss7TxSuccCA	Number of MAP response messages successfully transferred from SS7 TCAP layer to ComAgent layer.	30 min

Ss7TxSuccCA

Measurement Group	SS7 Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of MAP response messages successfully transferred from SS7 TCAP layer to ComAgent layer
Collection Interval	30 min
Peg Condition	When TCAP layer successfully forwards message to Communication Agent
Measurement Scope	Network, NE, Server

Recovery

Values in this measurement provides a measure of number of TCAP messages forwarded to Communication Agent for routing to other XG SS7 Stack.

Transport Exception measurements

The Transport Exception measurement group contains measurements that provide information about exceptions and unexpected events related to the Transport Manager.

Measurement Tag	Description	Collection Interval
RxTrFarEndClose	Number of times the far-end closed the association	30 min
EvTrManClose	Number of times the Trasnport was manually closed. This includes manual changes of the transport administrative state that cause the transport to transition from APP-UP to Disabled.	30 min
EvTrNoRespClose	Number of times the Transport was closed due to lack of response from the far-end. This includes lack of response to any signaling sent on the transport.	30 min
EvTrCnxFail	The number of times the SCTP connection attempt failed on the transport. This includes only unsuccessful attempts to connect/accept SCTP connections. It does not include failure of established connections. The number of times open attempt on UDP socket in Listen Mode failed on the Transport.	30 min
TxTrSendFail	The number of times the SCTP/UDP send failed for signaling on the transport. This includes sending	30 min

Measurement Tag	Description	Collection Interval
	of any messages on an established transport or UDP socket.	
RxTrRcvFailed	The number of times an SCTP receive attempt failed on the transport. Failure to receive message via SCTP may result in a message being discarded.	30 min
EvTrSockInitFail	Number of times the socket initialization failed	30 min
TmSingleTransQueueFull	The number of egress messages that were discarded because the singleTransport Writer Queue was full.	30 min
EvSctpAdjIPToDwn	Number of times configured IP Address of an Adjacent Node goes from Available to Unavailable.	30 min
EvSctpTransRej	Number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.	30 min

RxTrFarEndClose

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of times the far end closed the SCTP connection
Collection Interval	30 min
Peg Condition	Each time the far-end of the association closes the association by sending either SHUTDOWN or ABORT
Measurement Scope	NE, Server

Recovery

1. If the closing of the association was expected, no further action is necessary - the association will be recovered as soon as the far-end is ready to connect again.
2. If the closing of the association was not expected:
   a) Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
   b) Look in the event history at **Main Menu** > **Alarms & Events** > **View History** Event 19404 - Far-end closed the Transport to determine exactly when the far-end closed the association.
   c) Look for other events for the association or MP server in the event history.
   d) Verify that IP connectivity still exists between the MP server and the SG.
   e) Verify whether the far-end of the association is undergoing maintenance.

EvTrManClose

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of times the Transport was manually closed. This includes manual changes of the transport administrative state that cause the transport to transition from APP-UP to Disabled.
Collection Interval	30 min
Peg Condition	Each time a manual change is made to the transport administrative state from Enabled to Blocked or from Enabled to Disabled, causing the transport to transition our of APP-UP protocol state. **Note:** This condition has a special meaning for SS7/M3UA where it is linked with ASP-UP.
Measurement Scope	NE, Server

Recovery

1. If the transport is known to be under maintenance, then no further action is necessary.
2. If the closing of the association was not expected:
   a) Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
   b) Look in the event history at **Main Menu** > **Alarms & Events** > **View History** Event 19406 - Local Transport maintenance state change, which shows the manual transport state transitions and contains a time-stamp of when the change occurred.
   c) The security logs at **Main Menu** > **Log Files** > **Security Logs History** can be searched using the time-stamp from the event history log to determine which login performed the manual state change on the association.
   d) It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvTrNoRespClose

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of times the transport was closed due to lack of response from the far end, including lack of response to any signaling sent on the transport.
Collection Interval	30 min
Peg Condition	Each time an established Transport is closed by the MP server due to lack of response at the SCTP level from the far-end of the association.
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement should have a zero value. If non-zero, the association has been closed due to lack of response from the far-end. The MP server will begin periodic attempts to reconnect to the SG.
2. Otherwise:
   a) Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
   b) Look in the event history at **Main Menu** > **Alarms & Events** > **View History** Event 19405 - Transport closed due to a lack of response (refer to the *DSR Alarms and KPIs Reference* for details about this event.
   c) Verify IP connectivity between the MP server and the SG.
   d) Determine if the far-end of the association is congested, possibly causing slow response times on the association.
   e) Check the IP network between the MP server and the SG for excessive retransmissions.
   f) It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvTrCnxFail

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	• The number of times the SCTP connection attempt failed on the transport. This includes only unsuccessful attempts to connect/accept SCTP connections. It does not include failure of established connections. • The number of times open attempt on UDP socket in Listen Mode failed on the Transport.
Collection Interval	30 min
Peg Condition	• Each time an SCTP connect attempt fails • Each time an UDP open attempt in Listen mode fails • Each time an SCTP open attempt in Listen mode fails
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement should have a zero value. A non-zero value indicates that the MP server has attempted to connect to the Peer IP Address at least once and failed to establish the SCTP connection.
2. Otherwise:
   a) Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
   b) Look in the event history at **Main Menu** > **Alarms & Events** > **View History** Event 19402 - Failed to connect Transport, which provides more details as to the actual cause of the failure.
   c) Verify that the Adjacent Node that represents the far-end of the association is configured with the correct IP address at **Main Menu** > **Transport Manager** > **Configuration** > **Adjacent Node**.

d) Verify that the remote port configured at **Main Menu** > **Transport Manager** > **Configuration** > **Transport** for the association correctly identifies the port that the Adjacent Node is listening on for SCTP connections.
e) Verify the IP network connectivity between the MP server and the Adjacent Node.
f) If the SG must be configured to connect to the MP server's IP address and port, verify that the SG configuration matches the association configuration at **Main Menu** > **Transport Manager** > **Configuration** > **Transport**.
g) It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TxTrSendFail

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of times the SCTP/UDP send failed for signaling on the transport. This includes sending of any messages on an established transport or UDP socket.
Collection Interval	30 min
Peg Condition	Each time an attempt to send signaling DATA fails for any reason and the information being sent cannot be mapped to a specific transport
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement should have a zero value. A non-zero value indicates that an attempt to send a message to the far-end on this Transport has failed. Normally this happens if the far-end cannot keep up with the rate of messages being sent from all links on the association.
2. Otherwise:
   a) Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
   b) Look in the event history at **Main Menu** > **Alarms & Events** > **View History** Event 19407 - Failed to send Transport DATA Message, which gives more information about exactly what caused the failure to send.
   c) Verify that the IP network between the MP server and the Adjacent Node is functioning as expected.
   d) It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxTrRecvFailed

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)

Description	The number of times an SCTP/UDP receive attempt failed on the transport. Failure to receive message via SCTP may result in a message being discarded
Collection Interval	30 min
Peg Condition	Each time an SCTP receive fails when the far-end attempted to send data, but the data cannot be received due to an invalid message length
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement should have a zero value. A non-zero value indicates that the far-end is sending data that is malformed.
2. Otherwise:
   a) Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
   b) Look in the event history at **Main Menu** > **Alarms & Events** > **View History** Event 19403 - received malformed SCTP message (invalid length), which gives more information about exactly what caused the failure.
   c) Try to bring the sockets back into alignment by manually Disabling and Enabling the Transport.
   d) It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvTrSockInitFail

Measurement Group	Transport Exception
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of times the socket initialization failed.
Collection Interval	30 min
Peg Condition	Each time one or more socket options cannot be set according to the settings in the transport's configuration set
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement should have a zero value. A non-zero value indicates some problem with association setup prior to attempting to connect the association.
2. If this issue occurs, look in **Main Menu** > **Alarms & Events** > **View History** for Event 19401 - Failed to configure Transport, which provides details about exactly what part of the configuration failed.
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmSingleTransQueueFull

Measurement Group	Transport Exception

Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of egress messages that were discarded because the single Transport Writer Queue was full.
Collection Interval	30 min
Peg Condition	Check whether the single peers transmit data queue limit has reached its max limit (1000). If max limit is reached or exceeded then peg the measurement and discard the low priority events.
Measurement Scope	NE, Server

Recovery

1. This measurements indicates that the Transport is backed up and there could be messages that will get discarded. If it's above the defined critical threshold, it results in generating Alarm 19408 - Single Transport Egress-Queue Utilization (refer to the *DSR Alarms and KPIs Reference* for details about this alarm).
2. The percent utilization of the MP's Transport Writer Queue is approaching its maximum capacity. If this problem persists and the queue reaches 100% utilization, all new egress messages from the Transport will be discarded.

   This alarm should not normally occur when no other congestion alarms are asserted. This may occur for a variety of reasons:

   1. An IP network or Adjacent node problem may exist preventing SCTP from transmitting messages into the network at the same pace that messages are being received form the network.
   2. The SCTP Association Writer process may be experiencing a problem preventing it from processing events from its event queue. The alarm log should be examined form **Main Menu** > **Alarms & Events**.
   3. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. MP server status can be monitored form **Main Menu** > **Status & Control** > **Server Status**.
   4. The mis-configuration of Adjacent Node IP routing may result in too much traffic being distributed to the MP. Each MP in the server site should be receiving approximately the same ingress transaction per second.
   5. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from **Main Menu** > **Status & Control** > **KPI Display**. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.

3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvSctpAdjPToDwn

Measurement Group	Transport Exception
Measurement Type	Max
Measurement Dimension	Arrayed (per Transport)
Description	The number of times a configured IP Address of an Adjacent Node goes from Available to Unavailable.

Collection Interval	30 min
Peg Condition	Each time reachability to a configured IP address of an Adjacent Node is lost, indicating a fault in the path to that address was detected.
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement should have a zero value. A non-zero value indicates a path fault to that address was detected.
2. Otherwise:
    1. Check the event history log at **Main Menu** > **Alarms & Events** > **View History**, looking for Event 19409 - Message Rejected by ACL Filtering which provide more details as to the actual cause of the failure.
    2. Verify the Adjacent Node that represents the far-end of the association is configured with the correct address at **Main Menu** > **Transport Manager** > **Configuration** > **Adjacent Node**.
    3. Verify the IP network connectivity between the MP server and the Adjacent Node's IP address using a ping or traceroute command
3. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

EvSctpTransRej

Measurement Group	Transport Exception
Measurement Type	Max
Measurement Dimension	Arrayed (per Transport)
Description	The number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.
Collection Interval	30 min
Peg Condition	Each time the association has been rejected due to IP address validation failure in the SCTP INITs/INIT-ACKs transmitted by the Adjacent Node.
Measurement Scope	NE, Server

Recovery

1.
2. If all is well, this measurement should have a zero value. A non-zero value indicates that the Adjacent Node has attempted to connect to the Peer IP Address at least once and but the connection attempt was rejected because the IP addresses advertised by the Adjacent Node failed validation.
3. Otherwise:
    1. Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
    2. Check the event history log at **Main Menu** > **Alarms & Events** > **View History**, looking for Events 19411 - SCTP Transport closed due to failure of multihoming validation or 19412 - SCTP

Transport Transport Configuration Mismatch which provide more details as to the actual cause of the failure.

3. Verify that the SCTP validation mode is as desired.
4. Verify that the Adjacent Node that represents the far-end of the association is configured with the correct address at **Main Menu** > **Transport Manager** > **Configuration** > **Adjacent Node**.
5. Verify that the remote port configured at **Main Menu** > **Transport Manager** > **Configuration** > **Transport** for the association correctly identifies the port that the Adjacent node is listening on for SCTOp connections.
6. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

Transport Usage measurements

The Transport Usage measurement group contains measurements that provide information about the usage of the Transport Manager.

Measurement Tag	Description	Collection Interval
EvTrCnxSuccess	The number of times the SCTP connection was successfully established on the Transport. The number of times the UDP socket in Listen Mode was opened successfully on the Transport.	30 min
TmTrEnaNotUp	The number of seconds during the reporting interval during which the transport was in the Enabled administrative state but was not in APP-UP protocol state. When the transport is Enabled, the desired protocol state is APP-UP. This measurement indicates the amount of time during the reporting interval for which the association was not in the desired protocol state.	30 min
RxTmSctpBufAvg	The Average Value of the number of bytes in SCTP RX Window.	5 min
RxTmSctpBufPeak	The Peak Value of the number of bytes in SCTP RX Window	5 min

EvTrCnxSuccess

Measurement Group Transport Usage

Measurement Type Simple

Measurement Dimension Arrayed (per Transport)

Description

- The number of times the SCTP connection was successfully established on the transport.
- The number of times the UDP socket in Listen Mode was opened successfully on the transport.

Collection Interval	30 min
Peg Condition	• Each time the SCTP association reaches the APP-UP protocol state (i.e. the connection is successfully ESTABLISHED) • Each time the UDP socket in Listen Mode was opened successfully
Measurement Scope	NE, Server

Recovery

1. If the association is expected to have connected during the measurement reporting interval, no action is necessary.
2. Otherwise:
   a) Transport status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
   b) Look in the event history at **Main Menu** > **Alarms & Events** > **View History** events related to the association or the MP server to determine what may have caused the Transport to fail.
   c) It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmTrEnaNotUp

Measurement Group	Transport Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (per Transport)
Description	The number of seconds during the reporting interval during which the transport was in the Enabled administrative state but was not in APP-UP protocol state. When the transport is Enabled, the desired protocol state is APP-UP. This measurement indicates the amount of time during the reporting interval for which the association was not in the desired protocol state.
Collection Interval	30 min
Peg Condition	Time shall be accumulated for this measurement during the collection interval when all of the following are true: • the association is in the ENABLED administrative state • the association is not in the ASP-UP protocol state for M3UA and APP-UP for other Plugins
Measurement Scope	NE, Server

Recovery

1. If all is well, this measurement should have a zero value. A non-zero value indicates that the MP server has attempted to connect to the Peer IP Address at least once and failed to establish the SCTP connection.
2. Otherwise:
   a) Association status can be viewed at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.

b) Verify that the Adjacent server that represents the far-end of the association is configured with the correct IP address at **Main Menu** > **Transport Manager** > **Configuration** > **Adjacent Node**.
c) Verify that the remote port configured at **Main Menu** > **Transport Manager** > **Configuration** > **Transport** for the association correctly identifies the port that the SG is listening on for SCTP connections.
d) Verify the IP network connectivity between the MP server and the SG.
e) If the Adjacent Node must be configured to connect to the MP server's IP address and port, verify that the Adjacent Node configuration matches the association configuration at **Main Menu** > **Transport Manager** > **Maintenance** > **Transport**.
f) It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

RxTmSctpBufAvg

Measurement Group	Transport Usage
Measurement Type	Average
Measurement Dimension	Arrayed (per Transport)
Description	The Average Value of the number of bytes in SCTP RX Window
Collection Interval	5 min
Peg Condition	Every Second, retrieve the Rx socket buffer occupancy by using the "getsockopt" functions and then calculates and peg the Average buffer occupancy, during the last 5 min window. To calculate the current RX Buffer Occupancy, we subtract the number of unused bytes in the buffer from the initial default RX buffer size set during setsockopt at the time of socket creation.
Measurement Scope	NE, Server

Recovery

No action required. This is debug statistical information retrieved from getsockopt (SO_RCVBUF) interface.

RxTmSctpBufPeak

Measurement Group	Transport Usage
Measurement Type	Max
Measurement Dimension	Arrayed (per Transport)
Description	The Peak Value of the number of bytes in SCTP RX Window
Collection Interval	5 min
Peg Condition	Every Second, retrieve the Rx socket buffer occupancy by using the "getsockopt" functions and then calculates and peg the Maximum buffer occupancy during the last 5 min window. To calculate the current RX Buffer Occupancy, we subtract the number of unused bytes in the buffer from the initial default RX buffer size set during setsockopt at the time of socket creation.

Measurement Scope

Recovery

No action required. This is debug statistical information retrieved from getsockopt (SO_RCVBUF) interface.

Transport Performance measurements

The Transport Performance measurement group contains measurements that provide information about performance related measurements for the Transport Manager.

Measurement Tag	Description	Collection Interval
TxTrOctets	The number of octets sent on the SCTP/UDP Transport. It does not include SCTP, IP, or Ethernet headers.	30 min
RxTrOctets	The number of octets received on the SCTP/UDP Transport. It does not include SCTP, IP, or Ethernet headers.	30 min
TmSingleTransQueuePeak	The peak single Transport Writer Queue utilization (0-100%) measured during the collection interval	30 min
TmSingleTransQueueAvg	The average single Transport Writer Queue utilization (0-100%) measured during the collection interval	30 min
SctpTransPeerCWNDPeak	The peak value of congestion window size recorded for the peer of a SCTP transport during the collection interval.	30 min
SctpTransPeerCWNDAvg	The average of congestion window size recorded for the peer of a SCTP transport during the collection interval.	30 min
SctpTransPeerSRTTPeak	The peak value of smoothed round trip time for the SCTP Transport address during the collection interval.	30 min
SctpTransPeerSRTTAvg	The average value of smoothed round trip time for the SCTP Transport address during the collection interval.	30 min
SctpTransUnAckedDataPeak	The peak number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval.	30 min
SctpTransUnAckedDataAvg	The average number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval.	30 min

Measurement Tag	Description	Collection Interval
SctpTransRTOPeak	The peak value of retransmission timeout in use for the SCTP Transport address	30 min
SctpTransRTOAvg	The average value of retransmission timeout in use for the SCTP Transport address	30 min

TxTrOctets

Measurement Group	Transport Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Transport)
Description	The number of octets sent on the SCTP/UDP Transport. It does not include SCTP, UDP, IP, or Ethernet headers
Collection Interval	30 min
Peg Condition	Each time a DATA/non-DATA message is successfully sent on the transport (incremented by the number of octets in the message)
Measurement Scope	NE, Server

Recovery

No action required. This measurement indicates the level of signaling octets that have been sent over the association during the reporting interval.

RxTrOctets

Measurement Group	Transport Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Transport)
Description	The number of octets sent on the SCTP/UDP Transport. It does not include SCTP, UDP, IP, or Ethernet headers
Collection Interval	30 min
Peg Condition	Each time a DATA/non-DATA message is successfully received on the transport (incremented by the number of octets in the message)
Measurement Scope	NE, Server

Recovery

No action required. This measurement indicates the level of signaling octets that have been sent over the association during the reporting interval.

TmSingleTransQueuePeak

Measurement Group	Transport Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by Transport)
Description	The peak single Transport Writer Queue utilization (0-100%) measured during the collection interval (averaged over 2 sec)
Collection Interval	5 min
Peg Condition	Transport's Queue is registered as a Stack Resource, StackResourceManager thread monitors and updates the maximum Transport Queue utilization sample taken during the collection interval for affected Transport
Measurement Scope	NE, Server

Recovery

1. Transport single queue utilization depicts the SCTP or UDP Transport Writer Queues utilization. This is a measure of how fast the Transport queue is being processed. It indicates the maximum depth of queue over the monitored interval. It is primarily intended to assist in evaluating the needed for additional MP processing capacity at a Network Element.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
4. The percent utilization of the MP's Transport Writer Queue is approaching its maximum capacity. If this problem persists and the queue reaches 100% utilization, all new egress messages from the Transport will be discarded.
   a) An IP network or Adjacent node problem may exist preventing SCTP from transmitting messages into the network at the same pace that messages are being received form the network.
   b) The SCTP Association Writer process may be experiencing a problem preventing it from processing events from its event queue. The alarm log should be examined from **Main Menu** > **Alarms & Events**.
   c) If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining Mps in the server site. MP server status can be monitored from **Main Menu** > **Status & Control** > **Server Status**.
   d) The mis-configuration of Adjacent Node IP routing may result in too much traffic being distributed to the MP. Each MP in the server site should be receiving approximately the same ingress transaction per second.
   e) There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from **Main Menu** > **Status & Control** > **KPI Display**. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

TmSingleTransQueueAvg

Measurement Group	Transport Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by Transport)
Description	The average single Transport (SCTP/UDP) Writer Queue utilization (0-100%) measured during the collection interval (averaged over 2 sec)
Collection Interval	5 min
Peg Condition	Transport's Queue is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport
Measurement Scope	NE, Server

Recovery

1. This is a measure of how fast the Transport queue is being processed. It indicates the Average depth of queue over the monitored interval. It is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased
3. If the peak and average for an individual MP are significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist
4. It is recommended to contact *My Oracle Support (MOS)* for assistance if needed.

SctpTransPeerCWNDPeak

Measurement Group	Transport Performance
Measurement Type	Max
Measurement Dimension	Arrayed (per Transport)
Description	The peak value of congestion window size recorded for the peer of a SCTP transport during the collection interval
Collection Interval	30 min
Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API.
Measurement Scope	NE, Server

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS), It indicates Peak of congestion window recorded for the peer address.

SctpTransPeerCWNDAvg

Measurement Group	Transport Exception
Measurement Type	Average
Measurement Dimension	Arrayed (per Transport)
Description	The average of congestion window size recorded for the peer of a SCTP transport during the collection interval.
Collection Interval	30 min
Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API.
Measurement Scope	

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS); It indicates Average of congestion window recorded for the peer address.

SctpTransPeerSRTTPeak

Measurement Group	Transport Performance
Measurement Type	Max
Measurement Dimension	Arrayed (per Transport)
Description	The peak value of smoothed round trip time for the SCTP Transport address during the collection interval
Collection Interval	30 min
Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API.
Measurement Scope	NE, Server

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

SctpTransPeerSRTTAvg

Measurement Group	Transport Performance
Measurement Type	Average
Measurement Dimension	Arrayed (per Transport)

Description	The average value of smoothed round trip time for the SCTP Transport address during the collection interval.
Collection Interval	30 min
Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API.
Measurement Scope	NE, Server

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

SctpTransUnAckedDataPeak

Measurement Group	Transport Performance
Measurement Type	Max
Measurement Dimension	Arrayed (per Transport)
Description	The peak number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval.
Collection Interval	30 min
Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API.
Measurement Scope	NE, Server

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

SctpTransUnAckedDataAvg

Measurement Group	Transport Performance
Measurement Type	Average
Measurement Dimension	Arrayed (per Transport)
Description	The average number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval
Collection Interval	30 min

Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API
Measurement Scope	NE, Server

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

SctpTransRTOPeak

Measurement Group	Transport Performance
Measurement Type	Average
Measurement Dimension	Arrayed (per Transport)
Description	The average value of retransmission timeout in use for the SCTP Transport address
Collection Interval	30
Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API
Measurement Scope	NE, Server

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

SctpTransRTOAvg

Measurement Group	Transport Performance
Measurement Type	Average
Measurement Dimension	Arrayed (per Transport)
Description	The average value of retransmission timeout in use for the SCTP Transport address
Collection Interval	30 min
Peg Condition	This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport. SCTP status information will be retrieved from socket option "SCTP_STATUS" through sctp_opt_info API
Measurement Scope	NE, Server

Recovery

This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

Topology Hiding Performance measurements

The Topology Hiding Performance measurement report contains measurements providing information on the number of messages that the various topology hiding methods were applied.

Measurement Tag	Description	Collection Interval
TxPathTopology	Number of messages given path topology hiding treatment on messages routed to an Untrusted Network.	5 min
RxPathTopology	Number of messages given path topology hiding treatment on messages received from an Untrusted Network.	5 min
EvHssTopology	Number of messages given S6a/S6d HSS topology hiding treatment.	5 min
EvMmeTopology	Number of messages given MME/SGSN topology hiding treatment.	5 min
EvMmeTopologyException	Number of messages given exception treatment while applying MME/SGSN topology hiding treatment.	5 min
EvHssTopologyException	Number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment.	5 min
EvAfTopologyException	Number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment.	5 min
EvAfTopologyExceptionMp	Number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment.	5 min
EvAfTopologyMp	Number of messages given S9 AF/pCSCF topology hiding treatment.	5 min
EvAfTopology	Number of messages given S9 AF/pCSCF topology hiding treatment.	5 min
EvPcrfTopologyException	Number of messages given exception treatment while applying S9 PCRF topology hiding treatment.	5 min
EvPcrfTopologyExceptionMp	Number of messages given exception treatment while applying S9 PCRF topology hiding treatment.	5 min

Measurement Tag	Description	Collection Interval
EvPcrfTopologyMp	Number of messages given S9 PCRF topology hiding treatment.	5 min
EvPcrfTopology	Number of messages given S9 PCRF topology hiding treatment.	5 min
TxPathTopologyMp	Number of messages given path topology hiding treatment on messages routed to an Untrusted Network.	5 min
RxPathTopologyMp	Number of messages given path topology hiding treatment on messages received from an Untrusted Network.	5 min
EvHssTopologyMp	Number of messages given S6a/S6d HSS topology hiding treatment.	5 min
EvMmeTopologyMp	Number of messages given MME/SGSN topology hiding treatment.	5 min
EvMmeTopologyMpException	Number of messages given exception treatment while applying MME/SGSN topology hiding treatment.	5 min
EvHssTopologyMpException	Number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment.	5 min

TxPathTopology

Measurement Group Topology Hiding Performance

Measurement Type Simple

Measurement Dimension Arrayed (by Connection ID)

Description Number of messages given path topology hiding treatment on messages routed to an Untrusted Network

Collection Interval 5 min

Peg Condition Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively

Measurement Scope Site

Recovery

No action required.

RxPathTopology

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Number of messages given path topology hiding treatment on messages received from an Untrusted Network
Collection Interval	5 min
Peg Condition	Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTR and ATR respectively
Measurement Scope	Site

Recovery

No action required.

EvHssTopology

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Number of messages given S6a/S6d HSS topology hiding treatment
Collection Interval	5 min
Peg Condition	Each time S6a/S6d HSS TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR **Note:** If S6a/S6d HSS TH treatment is applied to more than one AVP in a message, the counter is only incremented once
Measurement Scope	Site

Recovery

No action required.

EvMmeTopology

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	Number of messages given MME/SGSN topology hiding treatment

Collection Interval	5 min
Peg Condition	Each time MME/SGSN TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR **Note:** If MME/SGSN TH treatment is applied to more than one AVP in a message, the counter is only incremented once
Measurement Scope	Site

Recovery

No action required.

EvMmeTopologyException

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of messages given exception treatment while applying MME/SGSN topology hiding treatment
Collection Interval	5 min
Peg Condition	When MME/SGSN TH exception treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH
Measurement Scope	Site

Recovery

Ensure that all MME/SGSN hostnames to be hidden are present in the MME/SGSN Configuration Set

EvHssTopologyException

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment
Collection Interval	5 min
Peg Condition	When S6a/S6d HSS TH exception treatment is applied to a Request message at TH trigger point RTH
Measurement Scope	Site

Recovery

Check the HSS Vendor and request the vendor to be RFC 6733 Compliant

EvPcrfTopology

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of messages given S9 PCRF topology hiding treatment
Collection Interval	5 min
Peg Condition	When S9 PCRF TH treatment is applied to either a Request or Answer message TH trigger points RTH, RTR, ATH, and ATR
Measurement Scope	Site

Recovery

No action required.

EvPcrfTopologyMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given S9 PCRF topology hiding treatment
Collection Interval	5 min
Peg Condition	When S9 PCRF TH treatment is applied to either a Request or Answer message TH trigger points RTH, RTR, ATH, and ATR
Measurement Scope	Site

Recovery

No action required.

EvPcrfTopologyExceptionMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given exception treatment while applying S9 PCRF topology hiding treatment
Collection Interval	5 min

Peg Condition	When S9 PCRF TH treatment is applied to either a Request or Answer message at RTH, RTR, or ATH trigger points and "PCRF Actual Name Not Found" Action is invoked
Measurement Scope	Site

Recovery

1. Check with the PCRF Vendor and request them to be RFC 6733 Compliant if the format of the Session-ID AVP is not RFC 6733 compliant.
2. Check the configuration of TH Host Names and ensure that all PCRF host names to hidden are present in the S9 PCRF TH Configuration Set

EvPcrfTopologyException

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of messages given exception treatment while applying S9 PCRF topology hiding treatment
Collection Interval	5 min
Peg Condition	When S9 PCRF TH treatment is applied to either a Request or Answer message at RTH, RTR, or ATH trigger points and "PCRF Actual Name Not Found" Action is invoked
Measurement Scope	Site

Recovery

1. Check with the PCRF Vendor and request them to be RFC 6733 Compliant if the format of the Session-ID AVP is not RFC 6733 compliant.
2. Check the configuration of TH Host Names and ensure that all PCRF host names to hidden are present in the S9 PCRF TH Configuration Set

EvAfTopology

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Diameter Connection ID)
Description	The number of messages given S9 AF/pCSCF topology hiding treatment
Collection Interval	5 min

Peg Condition	When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR **Note:** If S9 AF/pCSCF TH treatment is applied to more than one AVP in a message, the counter is only incremented once
Measurement Scope	Site

Recovery

No action required.

EvAfTopologyMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given S9 AF/pCSCF topology hiding treatment
Collection Interval	5 min
Peg Condition	When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR **Note:** If S9 AF/pCSCF TH treatment is applied to more than one AVP in a message, the counter is only incremented once
Measurement Scope	Site

Recovery

No action required.

EvAfTopologyExceptionMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment
Collection Interval	5 min
Peg Condition	When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, or ATH and "AF/pCSCF Actual Name Not Found" Action is invoked
Measurement Scope	Site

Recovery

No action required.

EvAfTopologyException

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment
Collection Interval	5 min
Peg Condition	When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, or ATH and "AF/pCSCF Actual Name Not Found" Action is invoked
Measurement Scope	Site

Recovery

No action required.

TxPathTopologyMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given path topology hiding treatment on messages routed to an Untrusted Network
Collection Interval	5 min
Peg Condition	Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively
Measurement Scope	Site

Recovery

No action required.

RxPathTopologyMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single

Description	The number of messages given path topology hiding treatment on messages routed from an Untrusted Network
Collection Interval	5 min
Peg Condition	Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively
Measurement Scope	Site

Recovery

No action required.

EvHssTopologyMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by Connection ID)
Description	The number of messages given S6a/S6d HSS topology hiding treatment
Collection Interval	5 min
Peg Condition	Each time S6a/S6d HSS TH treatment is applied to either a Request or Answer message a TH trigger points RTH, RTR, ATH, and ATR **Note:** If S6a/S6d HSS TH treatment is applied to more than one AVP in a message, the counter is only incremented once
Measurement Scope	Site

Recovery

No action required.

EvMmeTopologyMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given MME/SGSN topology hiding treatment
Collection Interval	5 min

Peg Condition	Each time MME/SGSN TH treatment is applied to either a Request or Answer message a TH trigger points RTH, RTR, ATH, and ATR **Note:** If MME/SGSN TH treatment is applied to more than one AVP in a message, the counter is only incremented once
Measurement Scope	Site

Recovery

No action required.

EvMmeTopologyExceptionMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given exception treatment while applying MME/SGSN topology hiding treatment
Collection Interval	5 min
Peg Condition	Each time MME/SGSN TH treatment is applied to either a Request or Answer message a TH trigger points RTH and ATH trigger points
Measurement Scope	Site

Recovery

Ensure that all MME/SGSN hostnames to be hidden are present in the MME/SGSN Configuration Set

EvHssTopologyExceptionMp

Measurement Group	Topology Hiding Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment
Collection Interval	5 min
Peg Condition	When S6a/S6d HSS TH excpetion treatment is applied to Request at RTH trigger point
Measurement Scope	Site

Recovery

Check with the HSS Vendor and request the vendor to be RFC 6733 Compliant.

TTG Performance measurements

Table 95: TTG Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TtgMaxLossExceeded	The number of request messages that were not routed to the TTG because the maximum loss rate for the Route Group in the Route List was exceeded.	5 min
TtgSelectedP0	The number of messages routed to the TTG with message priority 0.	5 min
TtgSelectedP1	The number of messages routed to the TTG with message priority 1.	5 min
TtgSelectedP2	The number of messages routed to the TTG with message priority 2.	5 min
TtgSelectedPrimaryTtg	The number of request messages routed to the TTG where the TTG is associated with the primary Route Group in the Route List.	5 min
TtgSelectedSecondaryTtg	The number of request messages routed to the TTG where the TTG is associated with a secondary Route Group in the Route List.	5 min
TtgTmLossRateRange1	Duration of TTG Loss Percent Range1	5 min
TtgTmLossRateRange2	Duration of TTG Loss Percent Range2	5 min
TtgTmLossRateRange3	Duration of TTG Loss Percent Range3	5 min
TtgTmLossRateRange4	Duration of TTG Loss Percent Range4	5 min

TtgMaxLossExceeded

Measurement Group TTG Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTG ID)

Description The number of request messages that were not routed to the TTG because the maximum loss rate for the Route Group in the Route List was exceeded.

Collection Interval 5 min

Peg Condition This measurement is updated when a Route Group is selected from a Route List and these criteria are met:

- TTG is assigned to the Route Group within the Route List

- TTG is owned by the local DSR Node
- Request message's Application-Id matches the Application-Id assigned to the local TTG
- TTG's Admin State = Enabled
- TTG's Current Loss Percent is greater than the TTG Max Loss Percent Threshold attribute value assigned to the Route Group within the Route List

Measurement Scope Site

Recovery

No action required.

TtgSelectedP0

Measurement Group TTG Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTG ID)

Description The number of messages routed to the TTG with message priority 0.

Collection Interval 5 min

Peg Condition This measurement is updated when a Route Group is selected from a Route List and these criteria are met:

- TTG is assigned to the Route Group within the Route List
- TTG is owned by the local DSR Node
- Request message's Application-Id matches the Application-Id assigned to the local TTG
- TTG's Admin State = Enabled
- TTG's Current Loss Percent is less than or equal to the TTG Max Loss Percent Threshold attribute value assigned to the Route Group within the Route List
- Message Priority = 0

Measurement Scope Site

Recovery

No action required.

TtgSelectedP1

Measurement Group TTG Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTG ID)

Description The number of messages routed to the TTG with message priority 1.

Collection Interval	5 min
Peg Condition	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: • TTG is assigned to the Route Group within the Route List • TTG is owned by the local DSR Node • Request message's Application-Id matches the Application-Id assigned to the local TTG • TTG's Admin State = Enabled • TTG's Current Loss Percent is less than or equal to the TTG Max Loss Percent Threshold attribute value assigned to the Route Group within the Route List • Message Priority = 1
Measurement Scope	Site

Recovery

No action required.

TtgSelectedP2

Measurement Group	TTG Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTG ID)
Description	The number of messages routed to the TTG with message priority 2.
Collection Interval	5 min
Peg Condition	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: • TTG is assigned to the Route Group within the Route List • TTG is owned by the local DSR Node • Request message's Application-Id matches the Application-Id assigned to the local TTG • TTG's Admin State = Enabled • TTG's Current Loss Percent is less than or equal to the TTG Max Loss Percent Threshold attribute value assigned to the Route Group within the Route List • Message Priority = 2
Measurement Scope	Site

Recovery

No action required.

TtgSelectedPrimaryTtg

Measurement Group	TTG Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTG ID)
Description	The number of request messages routed to the TTG where the TTG is associated with the primary Route Group in the Route List.
Collection Interval	5 min
Peg Condition	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: • TTG is assigned to the Route Group within the Route List • TTG is owned by the local DSR Node • Request message's Application-Id matches the Application-Id assigned to the local TTG • TTG's Admin State = Enabled • TTG's Current Loss Percent is less than or equal to the TTG Max Loss Percent Threshold attribute value assigned to the Route Group within the Route List • Route Group within Route List is the current Active Route Group for the Route List
Measurement Scope	Site

Recovery

No action required.

TtgSelectedSecondaryTtg

Measurement Group	TTG Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTG ID)
Description	The number of request messages routed to the TTG where the TTG is associated with a secondary Route Group in the Route List.
Collection Interval	5 min
Peg Condition	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: • TTG is assigned to the Route Group within the Route List • TTG is owned by the local DSR Node • Request message's Application-Id matches the Application-Id assigned to the local TTG • TTG's Admin State = Enabled

- TTG's Current Loss Percent is less than or equal to the TTG Max Loss Percent Threshold attribute value assigned to the Route Group within the Route List
- Route Group within Route List is not the current Active Route Group for the Route List

Measurement Scope Site

Recovery

No action required.

TtgTmLossRateRange1

Measurement Group TTG Performance

Measurement Type Duration

Measurement Dimension Arrayed (by TTG ID)

Description Duration of TTG Loss Percent Range1

Collection Interval 5 min

Peg Condition When the DRL changes a local TTG's Current Loss Percent value, it shall:

- Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
- Save the new Current Loss Percent value in the TTG's RT-DB record
- If the TTG's old Current Loss Percent value is not equal to 0, then:
  - Calculate the duration of the time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
  - Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values
  - Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope Site

Recovery

No action required.

TtgTmLossRateRange2

Measurement Group TTG Performance

Measurement Type Duration

Measurement Dimension Arrayed (by TTG ID)

Description	Duration of TTG Loss Percent Range2
Collection Interval	5 min

Peg Condition	When the DRL changes a local TTG's Current Loss Percent value, it shall:
	• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
	• Save the new Current Loss Percent value in the TTG's RT-DB record
	• If the TTG's old Current Loss Percent value is not equal to 0, then:
	  • Calculate the duration of the time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
	  • Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values
	  • Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope	Site

Recovery

No action required.

TtgTmLossRateRange3

Measurement Group	TTG Performance
Measurement Type	Duration
Measurement Dimension	Arrayed (by TTG ID)
Description	Duration of TTG Loss Percent Range3
Collection Interval	5 min

Peg Condition	When the DRL changes a local TTG's Current Loss Percent value, it shall:
	• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
	• Save the new Current Loss Percent value in the TTG's RT-DB record
	• If the TTG's old Current Loss Percent value is not equal to 0, then:
	  • Calculate the duration of the time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
	  • Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values

- Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope Site

Recovery

No action required.

TtgTmLossRateRange4

Measurement Group TTG Performance

Measurement Type Duration

Measurement Dimension Arrayed (by TTG ID)

Description Duration of TTG Loss Percent Range4

Collection Interval 5 min

Peg Condition When the DRL changes a local TTG's Current Loss Percent value, it shall:

- Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
- Save the new Current Loss Percent value in the TTG's RT-DB record
- If the TTG's old Current Loss Percent value is not equal to 0, then:
  - Calculate the duration of the time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
  - Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values
  - Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope Site

Recovery

No action required.

TTP Performance measurements

Table 96: TTP Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
TtpDivertedInP0G	The number of request messages routed to TTP which were diverted from another TTP, with message priority 0 and color green.	5 min
TtpDivertedInP0Y	The number of request messages routed to TTP which were diverted from another TTP, with message priority 0 and color yellow.	5 min
TtpDivertedInP1G	The number of request messages routed to TTP which were diverted from another TTP, with message priority 1 and color green.	5 min
TtpDivertedInP1Y	The number of request messages routed to TTP which were diverted from another TTP, with message priority 1 and color yellow.	5 min
TtpDivertedInP2G	The number of request messages routed to TTP which were diverted from another TTP, with message priority 2 and color green.	5 min
TtpDivertedInP2Y	The number of request messages routed to TTP which were diverted from another TTP, with message priority 2 and color yellow.	5 min
TtpDivertedOutP0G	The number of request messages routed to TTP which were throttled/diverted, with message priority 0 and color green.	5 min
TtpDivertedOutP0Y	The number of request messages routed to TTP which were throttled/diverted, with message priority 0 and color yellow.	5 min
TtpDivertedOutP1G	The number of request messages routed to TTP which were throttled/diverted, with message priority 1 and color green.	5 min
TtpDivertedOutP1Y	The number of request messages routed to TTP which were throttled/diverted, with message priority 1 and color yellow.	5 min
TtpDivertedOutP2G	The number of request messages routed to TTP which were throttled/diverted, with message priority 2 and color green.	5 min

Measurement Tag	Description	Collection Interval
TtpDivertedOutP2Y	The number of request messages routed to TTP which were throttled/diverted, with message priority 2 and color yellow.	5 min
TtpDoicException	The number of DOIC Protocol Errors.	5 min
TtpDropP0G	The number of transactions abandoned due to TTP throttling/diversion, with message priority 0 and color green.	5 min
TtpDropP0Y	The number of transactions abandoned due to TTP throttling/diversion, with message priority 0 and color yellow.	5 min
TtpDropP1G	The number of transactions abandoned due to TTP throttling/diversion, with message priority 1 and color green.	5 min
TtpDropP1Y	The number of transactions abandoned due to TTP throttling/diversion, with message priority 1 and color yellow.	5 min
TtpDropP2G	The number of transactions abandoned due to TTP throttling/diversion, with message priority 2 and color green.	5 min
TtpDropP2Y	The number of transactions abandoned due to TTP throttling/diversion, with message priority 2 and color yellow.	5 min
TtpHandledDoicOverrideFlag	The number of request messages routed to TTP which were not diverted due to priority override.	5 min
TtpHandledP0G	The number of request messages routed to TTP which were not throttled, with message priority 0 and color green.	5 min
TtpHandledP0Y	The number of request messages routed to TTP which were not throttled, with message priority 0 and color yellow.	5 min
TtpHandledP1G	The number of request messages routed to TTP which were not throttled, with message priority 1 and color green.	5 min
TtpHandledP1Y	The number of request messages routed to TTP which were not throttled, with message priority 1 and color yellow.	5 min
TtpHandledP2G	The number of request messages routed to TTP which were not throttled, with message priority 2 and color green.	5 min

Measurement Tag	Description	Collection Interval
TtpHandledP2Y	The number of request messages routed to TTP which were not throttled, with message priority 2 and color yellow.	5 min
TtpHandledP4G	The number of request messages routed to TTP which were not throttled, with message priority 4 and color green.	5 min
TtpHandledP4Y	The number of request messages routed to TTP which were not throttled, with message priority 4 and color yellow.	5 min
TtpHandledRateAvg	Average TTP request message routing rate (messages per second).	5 min
TtpHandledRatePeak	Peak TTP request message routing rate (messages per second)	5 min
TtpSelected	The number of request messages routed to TTP.	5 min
TtpTmLossRateRange1	The duration of TTP Loss Percent Range1.	5 min
TtpTmLossRateRange2	The duration of TTP Loss Percent Range2.	5 min
TtpTmLossRateRange3	The duration of TTP Loss Percent Range3.	5 min
TtpTmLossRateRange4	The duration of TTP Loss Percent Range4.	5 min
TtpTmStaticThrottling	The duration of time (in seconds) that TTP Static Throttling was being applied.	5 min
TtpUniqueOLRs	The number of unique DOIC OLRs successfully processed.	5 min

TtpDivertedInP0G

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were diverted from another TTP, with message priority 0 and color green.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction is marked as "TTP Diverted" in its PTR
- Message Priority = 0
- Message Color = Green

Measurement Scope Site

Recovery

No action required.

TtpDivertedInP0Y

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were diverted from another TTP, with message priority 0 and color yellow.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction is marked as "TTP Diverted" in its PTR
- Message Priority = 0
- Message Color = Yellow

Measurement Scope Site

Recovery

No action required.

TtpDivertedInP1G

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were diverted from another TTP, with message priority 1 and color green.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction is marked as "TTP Diverted" in its PTR
- Message Priority = 1
- Message Color = Green

Measurement Scope Site

Recovery

No action required.

TtpDivertedInP1Y

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were diverted from another TTP, with message priority 1 and color yellow.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction is marked as "TTP Diverted" in its PTR
- Message Priority = 1
- Message Color = Yellow

Measurement Scope Site

Recovery

No action required.

TtpDivertedInP2G

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were diverted from another TTP, with message priority 2 and color green.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction is marked as "TTP Diverted" in its PTR
- Message Priority = 2
- Message Color = Green

Measurement Scope Site

Recovery

No action required.

TtpDivertedInP2Y

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were diverted from another TTP, with message priority 2 and color yellow.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction is marked as "TTP Diverted" in its PTR • Message Priority = 2 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpDivertedOutP0G

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were throttled/diverted, with message priority 0 and color green.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was diverted • Message Priority = 0 • Message Color = Green
Measurement Scope	Site

Recovery

No action required.

TtpDivertedOutP0Y

Measurement Group	TTP Performance

Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were throttled/diverted, with message priority 0 and color yellow.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was diverted • Message Priority = 0 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpDivertedOutP1G

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were throttled/diverted, with message priority 1 and color green.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was diverted • Message Priority = 1 • Message Color = Green
Measurement Scope	Site

Recovery

No action required.

TtpDivertedOutP1Y

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were throttled/diverted, with message priority 1 and color yellow.

Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was diverted • Message Priority = 1 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpDivertedOutP2G

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were throttled/diverted, with message priority 2 and color green.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was diverted • Message Priority = 2 • Message Color = Green
Measurement Scope	Site

Recovery

No action required.

TtpDivertedOutP2Y

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were throttled/diverted, with message priority 2 and color yellow.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was diverted

- Message Priority = 2
- Message Color = Yellow

Measurement Scope Site

Recovery

No action required.

TtpDoicException

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of DOIC Protocol Errors.

Collection Interval 5 min

Peg Condition This measurement is incremented whenever event TtpEvDoicException is generated.

Measurement Scope Site

Recovery

No action required.

TtpDropP0G

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of transactions abandoned due to TTP throttling/diversion, with message priority 0 and color green.

Collection Interval 5 min

Peg Condition The DRL abandoned routing of a transaction and all of these criteria are met:

- Last routing failure encountered was due to TTP diversion
- Message Priority = 0
- Message Color = Green

Measurement Scope Site

Recovery

No action required.

TtpDropP0Y

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of transactions abandoned due to TTP throttling/diversion, with message priority 0 and color yellow.
Collection Interval	5 min
Peg Condition	The DRL abandoned routing of a transaction and all of these criteria are met: • Last routing failure encountered was due to TTP diversion • Message Priority = 0 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpDropP1G

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of transactions abandoned due to TTP throttling/diversion, with message priority 1 and color green.
Collection Interval	5 min
Peg Condition	The DRL abandoned routing of a transaction and all of these criteria are met: • Last routing failure encountered was due to TTP diversion • Message Priority = 1 • Message Color = Green
Measurement Scope	Site

Recovery

No action required.

TtpDropP1Y

Measurement Group	TTP Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by TTP ID)
Description	The number of transactions abandoned due to TTP throttling/diversion, with message priority 1 and color yellow.
Collection Interval	5 min
Peg Condition	The DRL abandoned routing of a transaction and all of these criteria are met: • Last routing failure encountered was due to TTP diversion • Message Priority = 1 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpDropP2G

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of transactions abandoned due to TTP throttling/diversion, with message priority 2 and color green.
Collection Interval	5 min
Peg Condition	The DRL abandoned routing of a transaction and all of these criteria are met: • Last routing failure encountered was due to TTP diversion • Message Priority = 2 • Message Color = Green
Measurement Scope	Site

Recovery

No action required.

TtpDropP2Y

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of transactions abandoned due to TTP throttling/diversion, with message priority 2 and color yellow.
Collection Interval	5 min

Peg Condition	The DRL abandoned routing of a transaction and all of these criteria are met: • Last routing failure encountered was due to TTP diversion • Message Priority = 2 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpHandledDoicOverrideFlag

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were not diverted due to priority override.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and the transaction was not diverted because the Request message priority is greater than or equal to the TTP's Override Message Priority Threshold attribute value.
Measurement Scope	Site

Recovery

No action required.

TtpHandledP0G

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were not throttled, with message priority 0 and color green.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was not diverted • Message Priority = 0 • Message Color = Green

Measurement Scope Site

Recovery

No action required.

TtpHandledP0Y

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were not throttled, with message priority 0 and color yellow.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction was not diverted
- Message Priority = 0
- Message Color = Yellow

Measurement Scope Site

Recovery

No action required.

TtpHandledP1G

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were not throttled, with message priority 1 and color green.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction was not diverted
- Message Priority = 1
- Message Color = Green

Measurement Scope Site

Recovery

No action required.

TtpHandledP1Y

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were not throttled, with message priority 1 and color yellow.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction was not diverted
- Message Priority = 1
- Message Color = Yellow

Measurement Scope Site

Recovery

No action required.

TtpHandledP2G

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension Arrayed (by TTP ID)

Description The number of request messages routed to TTP which were not throttled, with message priority 2 and color green.

Collection Interval 5 min

Peg Condition The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met:

- Transaction was not diverted
- Message Priority = 2
- Message Color = Green

Measurement Scope Site

Recovery

No action required.

TtpHandledP2Y

Measurement Group TTP Performance

Measurement Type Simple

Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were not throttled, with message priority 2 and color yellow.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was not diverted • Message Priority = 2 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpHandledP4G

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were not throttled, with message priority 4 and color green.
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was not diverted • Message Priority = 4 • Message Color = Green
Measurement Scope	Site

Recovery

No action required.

TtpHandledP4Y

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP which were not throttled, with message priority 4 and color yellow.
Collection Interval	5 min

Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and all of these criteria are met: • Transaction was not diverted • Message Priority = 4 • Message Color = Yellow
Measurement Scope	Site

Recovery

No action required.

TtpHandledRateAvg

Measurement Group	TTP Performance
Measurement Type	Average
Measurement Dimension	Arrayed (by TTP ID)
Description	Average TTP request message routing rate (messages per second).
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and the transaction was not diverted.
Measurement Scope	Site

Recovery

No action required.

TtpHandledRatePeak

Measurement Group	TTP Performance
Measurement Type	Max
Measurement Dimension	Arrayed (by TTP ID)
Description	Peak TTP request message routing rate (messages per second).
Collection Interval	5 min
Peg Condition	The TTP was selected as defined by the peg condition criteria defined for *TtpSelected* and the transaction was not diverted.
Measurement Scope	Site

Recovery

No action required.

TtpSelected

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of request messages routed to TTP.
Collection Interval	5 min
Peg Condition	This measurement is updated when a Peer Node or Connection is selected from a Route Group (or a Peer Node is selected or Destination-Host Implicit Routing) which has an active TTP associated with the transaction meeting the following criteria: • Request message's Application-Id matches the Application-Id assigned to the TTP • FQDN assigned to the selected Peer Node/Connection matches the FQDN of the Peer Node assigned to the TTP • TTP's Throttling Admin State = Enabled
Measurement Scope	Site

Recovery

No action required.

TtpTmLossRateRange1

Measurement Group	TTP Performance
Measurement Type	Duration
Measurement Dimension	Arrayed (by TTP ID)
Description	The duration of TTP Loss Percent Range1.
Collection Interval	5 min

Peg Condition	When the DRL changes a local TTG's Current Loss Percent value, it shall:
	• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
	• Save the new Current Loss Percent value in the TTG's RT-DB record
	• If the TTG's old Current Loss Percent value is not equal to 0, then:
	  • Calculate the duration of time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
	  • Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values

- Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope Site

Recovery

No action required.

TtpTmLossRateRange2

Measurement Group TTP Performance

Measurement Type Duration

Measurement Dimension Arrayed (by TTP ID)

Description The duration of TTP Loss Percent Range2.

Collection Interval 5 min

Peg Condition When the DRL changes a local TTG's Current Loss Percent value, it shall:

- Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
- Save the new Current Loss Percent value in the TTG's RT-DB record
- If the TTG's old Current Loss Percent value is not equal to 0, then:
  - Calculate the duration of time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
  - Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values
  - Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope Site

Recovery

No action required.

TtpTmLossRateRange3

Measurement Group TTP Performance

Measurement Type Duration

Measurement Dimension Arrayed (by TTP ID)

Description The duration of TTP Loss Percent Range3.

Collection Interval 5 min

Peg Condition When the DRL changes a local TTG's Current Loss Percent value, it shall:

- Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
- Save the new Current Loss Percent value in the TTG's RT-DB record
- If the TTG's old Current Loss Percent value is not equal to 0, then:
  - Calculate the duration of time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
  - Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values
  - Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope Site

Recovery

No action required.

TtpTmLossRateRange4

Measurement Group TTP Performance

Measurement Type Duration

Measurement Dimension Arrayed (by TTP ID)

Description The duration of TTP Loss Percent Range4.

Collection Interval 5 min

Peg Condition When the DRL changes a local TTG's Current Loss Percent value, it shall:

- Save the time of the event in the TTG's RT-DB record called "Loss Start Time"
- Save the new Current Loss Percent value in the TTG's RT-DB record
- If the TTG's old Current Loss Percent value is not equal to 0, then:
  - Calculate the duration of time that the TTG's Current Loss Percent was set to the previous value based upon "Loss Start Time" and the current time
  - Determine which TtgTmLossRateRange-X measurement to update based upon the previous TTG Current Loss Percent value and the system-wide LossRateMax1, LossRateMax2, and LossRateMax3 values
  - Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time

Measurement Scope	Site

Recovery

No action required.

TtpTmStaticThrottling

Measurement Group	TTP Performance
Measurement Type	Duration
Measurement Dimension	Arrayed (by TTP ID)
Description	The duration of time (in seconds) that TTP Static Throttling was being applied.
Collection Interval	5 min
Peg Condition	The time duration interval starts when any of these events occur: • The TTP's Operational Reason is changed to "Static Rate Limit Exceeded" • A new measurement collection interval begins and the TTP's Operational Reason is "Static Rate Limit Exceeded" The time duration interval stops when any of these events occur: • The TTP's Operational Reason is changed from "Static Rate Limit Exceeded" to any other value • The current measurement collection interval ends When a time duration interval completes, the time measured is added to the total measurement value.
Measurement Scope	Site

Recovery

No action required.

TtpUniqueOLRs

Measurement Group	TTP Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by TTP ID)
Description	The number of unique DOIC OLRs successfully processed.
Collection Interval	5 min
Peg Condition	This measurement is updated when a DOIC OLR is accepted, applied to the associated TTP and the OLR's Sequence Number is greater than the TTP's Sequence Number.
Measurement Scope	Site

Recovery

No action required.

U-SBR Performance measurements

The U-SBR Performance measurement report contains measurements that provide performance information that is specific to the U-SBR.

Table 97: U-SBR Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
GenericConcurrentUpdateStateMeas	The total number of GenericConcurrentUpdateState stack events processed by the U-SBR server.	5 min
GenericCreateOrReadStateMeas	The total number of GenericCreateOrReadState stack events processed by the U-SBR server.	5 min
GenericCreateStateMeas	The total number of GenericCreateState stack events processed by the U-SBR server.	5 min
GenericDeleteStateMeas	The total number of GenericDeleteState stack events processed by the U-SBR server.	5 min
GenericErrMalformedRequestMeas	The total number of Generic State events that could not be decoded by the U-SBR server.	5 min
GenericErrMeas	The total number of stack events including the GenericErr code sent by the U-SBR server.	5 min
GenericErrRecObsoletedMeas	The total number of GenericConcurrentUpdateState stack events that did not lead to an update of the record, as the checksum and hash included in the request were no longer valid.	5 min
GenericReadStateMeas	The total number of GenericReadState stack events processed by the U-SBR server.	5 min
GenericTotalRequests	The total number of Generic state event requests that were received by U-SBR.	5 min
GenericUpdateStateMeas	The total number of GenericUpdateState stack events processed by the U-SBR server.	5 min

GenericConcurrentUpdateStateMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericConcurrentUpdateState events processed by the U-SBR server.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each received GenericConcurrentUpdateState stack event.
Measurement Scope	Server Group

Recovery

No action required.

GenericCreateOrReadStateMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericCreateOrReadState events processed by the U-SBR server.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each received GenericCreateOrReadState stack event.
Measurement Scope	Server Group

Recovery

No action required.

GenericCreateStateMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericCreateState events processed by the U-SBR server.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each received GenericCreateState stack event.
Measurement Scope	Server Group

Recovery

No action required.

GenericDeleteStateMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericDeleteState events processed by the U-SBR server.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each received GenericDeleteState stack event.
Measurement Scope	Server Group

Recovery

No action required.

GenericErrMalformedRequestMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Single
Description	The total number of Generic State events that could not be decoded by the U-SBR server.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each stack event result that included the GenericErrMalformedRequest code.
Measurement Scope	Server Group

Recovery

No action required.

GenericErrMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericState events that could not be processed by the U-SBR Server and were replied to with a GenericErr code.
Collection Interval	5 min

Peg Condition	This measurement is incremented at the U-SBR server for each stack event result that included the GenericErr code.
Measurement Scope	Server Group

Recovery

No action required.

GenericErrRecObsoletedMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericConcurrentUpdateState events that did not lead to updating the record.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each stack event result that included the GenericErrRecObsoletedMeas code.
Measurement Scope	Server Group

Recovery

No action required.

GenericReadStateMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericReadState events processed by the U-SBR server.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each received GenericReadState stack event.
Measurement Scope	Server Group

Recovery

No action required.

GenericTotalRequests

Measurement Group	U-SBR Performance
Measurement Type	Simple

Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of Generic state request events that were received by the U-SBR.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each stack event request received.
Measurement Scope	Server Group

Recovery

No action required.

GenericUpdateStateMeas

Measurement Group	U-SBR Performance
Measurement Type	Simple
Measurement Dimension	Arrayed (by short name of the owner application)
Description	The total number of GenericUpdateState events processed by the U-SBR server.
Collection Interval	5 min
Peg Condition	This measurement is incremented at the U-SBR server for each received GenericUpdateState stack event.
Measurement Scope	Server Group

Recovery

No action required.

Appendix A

Policy DRA Error Resolution Procedures

Topics:

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This section provides information and procedures to help users diagnose and resolve internal error codes indexed by the Policy DRA application. These procedures are best used in combination with the *Policy DRA Error Resolution* section of the *Policy DRA User's Guide*.

Error Code 500

Description	Binding capable session initiation request is received with no APN.
Associated P-DRA Alarm/Event	Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)
Associated Measurement	*RxBindCapMissingApn*
Associated Diameter Interface / Message Type	Gx/Gxx CCR-I
GUI Configurable	Yes

Recovery

1. See *CCR-I Processing with PCRF Pool* and *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where this error occurs and the impacts on Gx/Gxx CCR signaling processing.
2. Go to the P-DRA GUI at **Main Menu** > **Alarms & Events** > **View History**. Set up the right scope for Server Group, Resource Domain, Place and Place Association, or use Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) as Display Filter to start the search.
3. A list of Alarm 22730 - Policy DRA Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) should be displayed. Select an alarm based on the alarm time stamp or other preferred criteria that will bring in the details of the alarm in **Main Menu** > **Alarms & Events** > **View History [Report]**.
4. Obtain the policy client's Origin-Host FQDN from the ERR_INFO in the alarm report on Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm).
5. Go to **Main Menu** > **Measurements** > **Report** to obtain the measurement report for *RxBindCapMissingApn* and other relevant measurements. The frequency of the problem may be observed.
6. If needed, contact *My Oracle Support (MOS)* for further assistance.

Error Code 501

Description	Binding capable session initiation request is received with an APN, but the APN is not configured in the APN configuration.
Associated P-DRA Alarm/Event	Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)
Associated Measurement	*RxBindCapUnknownApn*

Associated Diameter Interface / Message Type	Gx/Gxx CCR-I
GUI Configurable	Yes

Recovery

1. See *CCR-I Processing with PCRF Pool* and *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where this error occurs and the impacts on Gx/Gxx CCR signaling processing.
2. Go to the PCA GUI at **Main Menu** > **Alarms & Events** > **View History**. Set up the right scope for Server Group, Resource Domain, Place and Place Association, or use Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) as Display Filter to start the search.
3. A list of Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) should be displayed. Select an alarm based on the alarm time stamp or other preferred criteria that will bring in the details of the alarm in **Main Menu** > **Alarms & Events** > **View History [Report]**.
4. Obtain the policy client's Origin-Host FQDN from the ERR_INFO in the alarm report on Alarm 22730 - Policy DRA Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm).
5. If the APN string is expected, configure the APN at the NOAMP using **Main Menu** > **Policy and Charging** > **Configuration** > **Access Point Names** screen.
6. If the APN string is not expected, it may imply that the policy client whose FQDN is specified in the ERR_INFO is using an invalid APN.
7. Go to **Main Menu** > **Measurements** > **Report** to obtain the measurement report for all relevant measurements. The frequency of the problem may be observed.

Error Code 502

Description	Request message is received and a binding with a PRCF was found. Policy DRA can't route the request to PCRF due to DSR queue full error.
Associated P-DRA Alarm/Event	Event 22707 - Diameter Message Processing Failure (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*RxRequestMsgQueueFullDiscard*
Associated Diameter Interface / Message Type	• Gx/Gxx CCR-I • Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. See *findSessionRef Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where this error occurs.

2. Go to the PCA NOAM GUI to collect information for possible root causes that may resort in the DRL queue being full:
   - Go to **Main Menu** > **Status & Manage** > **Server** to verify is some DA-MPs have failed. If some servers on the same side fail, the traffic will be distributed amongst the remaining DA-MPs).
   - Go to **Main Menu** > **Status & Manage** > **KPIs** to check the ingress traffic rates of the DA-MPs. Each DA-MP in the site should have about the same ingress rate in normal situation.
   - Go to **Main Menu** > **Alarms & Events** > **View History** to search for relevant congestion alarms. The Display Filter may be set as Timestamp or Server to include P-DRA, DRL, or DCL alarms.
3. Go to **Main Menu** > **Measurements** > **Report** to obtain the measurement report for all relevant measurements.

Error Code 2xx/3xx

Description	Request message is received and a binding with a PRCF was found. Policy DRA can't route the request to PCRF due to PCRF being unreachable.
Associated P-DRA Alarm/Event	Event 22707 - Diameter Message Processing Failure (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*TxPdraAnswersGeneratedForDiameterErr*
Associated Diameter Interface / Message Type	• Gx/Gxx CCR-I • Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. Error code 2xx/3xx is generated by DSR routing layer for various routing errors that result in the failure of routing the Diameter request to the PCRF.
2. Go to the PCA NOAM GUI to check the server status from **Main Menu** > **Status & Manage** > **Server** to verify if some DA-MPs have failed (if some servers on the same side fail, the traffic will be distributed amongst the remaining DA-MPs).
3. Go to **Main Menu** > **Status & Manage** > **KPIs** to check the ingress traffic rates of the DA-MPs. Each DA-MP in the site should have about the same ingress rate in normal situation
4. Go to **Main Menu** > **Alarms & Events** > **View History** to search for relevant congestion alarms. The Display Filter may be set as Timestamp or Server to include Policy DRA, DRL, or DCL alarms.
5. Check the PCA SOAM GUI **Main Menu** > **Measurements** > **Report** to search for relevant measurements.

Error Code 510

Description	A slave session could not be routed because, on polling the slave, sessionRef was no longer in the binding database.
Associated P-DRA Alarm/Event	N/A
Associated Measurement	*SbrSlavePollingFail*
Associated Diameter Interface / Message Type	• Gx/Gxx CCR-I • Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. See *Early binding Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand
2. Go to the PCA SOAM GUI at **Main Menu** > **Status & Manage** > **Server** to check binding SBRs' status.
3. Go to the **Main Menu** > **Alarms & Events** > **View History** to check binding SBR's congestion alarm/event info to determine a relation with the error.
4. Go to the PCA SOAM GUI **Main Menu** > **Measurements** > **Report** to search for relevant measurements. Select, but not limited to, "SBR Binding Exception" Measurement Group for the measurements directly related to this error.

Error Code 511

Description	A slave session could not be routed because, on polling the master, sessionRef was no longer in the binding database.
Associated P-DRA Alarm/Event	N/A
Associated Measurement	*SbrSlavePollingFail*
Associated Diameter Interface / Message Type	• Gx/Gxx CCR-I • Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. See *Early binding Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.

2. Go to the PCA SOAM GUI at **Main Menu** > **Status & Manage** > **Server** to check binding SBRs' status.
3. Get the measurement report from **Main Menu** > **Measurements** > **Report** to the frequency of the relevant measurements. Select, but not limited to, "SBR Binding Exception" Measurement Group to determine the frequency of the relevant measurements.

Error Code 512

Description	A slave session could not be routed because, on polling the master, sessionRef was early too long.
Associated P-DRA Alarm/Event	N/A
Associated Measurement	*SbrEarlyTooLongSrRemoved*
Associated Diameter Interface / Message Type	• Gx/Gxx CCR-I • Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. Check *Early binding Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the PCA SOAM GUI at **Main Menu** > **Status & Manage** > **Server** to obtain the Policy DRA DA-MP and binding SBR status.
3. Go to the **Main Menu** > **Alarms & Events** > **View History** to obtain the congestion alarm/event for Policy DRA DA-MP and/or binding SBR, if congestion occurs. Some congestion conditions may be released after a short while. The error may not persist after the congestion condition is gone.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "SBR Binding Exception" and "Policy DRA Congestion" Measurement Groups.
5. Go to PCA NOAM GUI at **Main Menu** > **Policy and Charging** > **Configuration** > **Policy DRA** > **Network-Wide Options** to check the Maximum Early Binding Lifetime value. Re-configure the value if necessary.

   Note: The measurement *SbrEarlyTooLongSrRemoved* indicates the frequency at which binding sessionRefs are discovered in an early state for longer than expected. This unexpected condition could occur if the binding SBR was in congestion and load shedding prevented the session from being transitioned from the early state to a final state. It could also occur if the Maximum Early Binding Lifetime value is configured to be nearly equal to or shorter than the Diameter transaction timer.

Error Code 513

Description	A slave session could not be routed because, on polling the master, an internal error occurred.
Associated P-DRA Alarm/Event	N/A
Associated Measurement	*SbrSlavePollingFail*
Associated Diameter Interface / Message Type	• Gx/Gxx CCR-I • Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. Go to the PCA SOAM GUI at **Main Menu** > **Status & Manage** > **Server** to obtain the Policy DRA DA-MP and binding SBR status.
2. Go to the **Main Menu** > **Alarms & Events** > **View History** to obtain the congestion alarm/event for Policy DRA DA-MP and/or binding SBR, if congestion occurs. Some congestion conditions may be released after a short while. The error may not persist after the congestion condition is gone.
3. Go to Policy DRA SOAM GUI at **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to check the server connection status. The error may be caused by a disconnection between the local and peer nodes that the message was retransmitted the maximum number of times without receiving a response.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "ComAgent Exception," "Connection Congestion," "SBR Binding Exception" and "Policy DRA Congestion" Measurement Groups.

Error Code 503

Description	No binding key in Binding Key Priority GUI can be matched or no key is included in the binding dependent message.
Associated P-DRA Alarm/Event	Event 22706 - Binding Key Not Found In Diameter Message (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*TxPdraAnswersGeneratedForDiameterErr*
Associated Diameter Interface / Message Type	• Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. Check *AAR Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.

2. Go to PCA SOAM GUI at **Main Menu** > **Policy and Charging** > **Configuration** > **Policy DRA** > **Binding Key Priority** to verify if the binding key priorities are expected (for instance IMSI and IPv56 Address are expected, but MSISDN and IPv4 are displayed instead).
3. If the binding key priorities are not expected, reset the binding key priority in this screen properly.
4. If the binding key priority are expected, check the validity of the received Request message as follows:
   - AVP carrying the expected key is present in the message
   - AVP carrying the expected key is correctly formed
   - AVP carrying the expected key is using a supported format (e.g. Subscription-ID AVP only Subscription-ID-Type of END_USER_E164 for MSISDN key and END_USER_IMSI for IMSI key).
5. Check the PCRA SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** to search for all relevant alarms/events. The alarm Display Filter may be set as Timestamp to verify all alarms generated at the same time when the error occurred.
6. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "SBR Binding Exception," "SBR Session Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Error Code 505

Description	Binding record is not found after examining all configured binding keys in Diameter message.
Associated P-DRA Alarm/Event	Event 22718 - Binding Not Found for Binding Dependent Session Initiate Request (refer to the *DSR Alarms and KPIs Reference* for more information)
Associated Measurement	*TxPdraAnswersGeneratedForPsbrErrResp*
Associated Diameter Interface / Message Type	• Rx AAR • Gx-Prime CCR-I
GUI Configurable	Yes

Recovery

1. Check *AAR Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to Policy SRA SOAM GUI at **Main Menu** > **Policy and Charging** > **Configuration** > **Policy DRA** > **Binding Key Priority** to verify if the binding key priorities are expected (for instance IMSI and IPv56 Address are expected, but MSISDN and IPv4 are displayed instead).
3. If the binding key priorities are not expected, reset the binding key priority in this screen properly.
4. If the binding key priority are expected, check the validity of the received Request message as follows:
   - AVP carrying the expected key is present in the message
   - AVP carrying the expected key is correctly formed

- AVP carrying the expected key is using a supported format (e.g. Subscription-ID AVP only Subscription-ID-Type of END_USER_E164 for MSISDN key and END_USER_IMSI for IMSI key).

5. Go to Policy DRANOAM GUI at **Main Menu** > **Policy DRA** > **Maintenance** > **Policy Database Query** to query the IMSI key to find all alternate keys. If alternate records exist, compare the keys from the database to the keys in the request message to see if they match exactly (e.g. no extra digits or characters, etc.)
6. Check the Policy DRA SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** to search for all relevant alarms/events. The alarm Display Filter may be set as Timestamp to verify all alarms generated at the same time when the error occurred.
7. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "SBR Binding Exception," "SBR Session Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Error Code 507

Description	SBR Error - ComAgent timeout
Associated P-DRA Alarm/Event	Event 22704 - Communication Agent Error
Associated Measurement	*TxPdraErrAnsGeneratedCAFailure*
Associated Diameter Interface / Message Type	• Gx CCR-I, CCR-U, and CCR-T • Rx AAR, STR • Gx-Prime CCR-I, CCR-U, and CCR-T
GUI Configurable	Yes

Recovery

1. Check *findSessionRef Processing*, *findOrCreateBindingResult Processing*, *findOrCreateBinding Response Processing with PCRF Pool*, *findSession Response Processing*, and *AAR Processing* in the Error Resolution appendix of the *Policy and Charging Appliaction User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to Policy DRA SOAM GUI at **Main Menu** > **Communication Agent** > **Maintenance** > **Connection Status** to check the server connection status. The error may be caused by a disconnection between the local and peer nodes that the message was retransmitted the maximum number of times without receiving a response. Also check the Communication Agent Service status screen that corresponds to the ServiceID in the event instance to troubleshoot the operation of the service.
3. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "ComAgent Exception," "Connection Congestion," "SBR Binding Exception," and "Policy DRA Congestion" Measurement Groups.
4. Check the **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 19810 - Communication Agent Egress Message Discarded, 19811 - Communication Agent Ingress Message Discarded, 19814 - Communication Agent Peer has not responded to heartbeat, 19832 - Communication Agent Reliable Transaction Failed, 19833 - Communication Agent Service Egress Message Discarded, 22712 - Policy SBR Communication Error, 22722 - Policy DRA Binding Sub-resource Unavailable, and 22723 - Policy DRA Session Sub-resource Unavailable. Refer to the *DSR Alarms and KPIs Reference* for details about these events.

Error Code 508

Description	SBR Error - SBR database error prevents SBR from reading, writing, or deleting a record
Associated P-DRA Alarm/Event	Event 22711 - SBR Database Error (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*TxPdraAnswersGeneratedForPsbrErrResp*
Associated Diameter Interface / Message Type	• Gx CCR-I, CCR-U, and CCR-T • Rx AAR, STR • Gx-Prime CCR-I, CCR-U, and CCR-T
GUI Configurable	Yes

Recovery

1. Check *findSessionRef Processing*, *findOrCreateBindingResult Processing*, *findOrCreateBinding Response Processing with PCRF Pool*, *findSession Response Processing*, and *AAR Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to PCA NOAM GUI at **Main Menu** > **Policy and Charging** > **Maintenance** > **SBR Status** to verify the status of binding and session SBR servers.
3. Check the **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 22711 - SBR Database Error). The table, operation, and key value of the SBR DB where the error may occur will be indicated as well.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "SBR Binding Exception" and "SBR Session Exception" Measurement Groups.

Error Code 520

Description	SBR PCRF Configuration Error - binding capable session initiation request received, but not PCRFs are configured at the site.
Associated P-DRA Alarm/Event	Alarm 22730 - Policy and Charging Configuration Error
Associated Measurement	*TxPdraAnswersGeneratedConfigErr*
Associated Diameter Interface / Message Type	Gx CCR-I
GUI Configurable	Yes

Recovery

1. Check *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.

2. Check the **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 22730 - Policy and Charging Configuration Error).
3. If Alarm 22730 - Policy and Charging Configuration Error indicates that no PCRF are configured, configure PCRFs at the SOAM GUI at **Main Menu** > **Policy and Charging** > **Configuration** > **Policy DRA** > **PCRFs**.

Error Code 521

Description	SBR Error - maximum number of Sessions per Binding is Exceeded that fails the binding creation for given IMSI of MSISDN key.
Associated P-DRA Alarm/Event	Event 22719 - Maximum Number of Sessions per Binding Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*TxPdraAnswersGeneratedForPsbrErrResp*
Associated Diameter Interface / Message Type	Gx CCR-I, CCR-U, and CCR-T
GUI Configurable	

Recovery

1. Check *findOrCreateBindingResult Processing* and *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Check the **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 22719 - Maximum Number of Sessions per Binding Exceeded).
3. Go to PCA NOAM GUI at **Main Menu** > **Policy and Charging** > **Maintenance** > **Policy Database Query** by using Event 22719 - Maximum Number of Sessions per Binding Exceeded to get all the information about session, including session-ids and PCEF FQDNs, to determine if the session is valid.
4. If the sessions exist in the Policy DRA, but not on the PCEF(s), contact *My Oracle Support (MOS)* for assistance.

Error Code 504

Description	ComAgent resource unavailable when sending stack event to pSBR.
Associated P-DRA Alarm/Event	Event 22704 - Communication Agent Error (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*TxPdraErrAnsGeneratedCAFailure*
Associated Diameter Interface / Message Type	• Gx CCR-I, CCR-U, and CCR-T • Rx AAR, STR

	• Gx-Prime CCR-I, CCR-U, and CCR-T
GUI Configurable	Yes

Recovery

1. Check *CCR-I Processing with PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Check the **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 19810 - Communication Agent Egress Message Discarded, 19811 - Communication Agent Ingress Message Discarded, 19814 - Communication Agent Peer has not responded to heartbeat, 19832 - Communication Agent Reliable Transaction Failed, 19833 - Communication Agent Service Egress Message Discarded, and 22712 - Policy SBR Communication Error). Refer to the *DSR Alarms and KPIs Reference* for details about these events.
3. Check the PCA NOAM GUI at **Main Menu** > **Policy and Charging** > **Maintenance** > **SBR Status** to verify the status of the binding SBR, session SBR, and related resources/sub-resources (Resource HA Role, Congestion Level, etc.)
4. Go to **Main Menu** > **Communication Agent** > **Maintenance** to verify Connection Status, Routed Services Status, and HA Services Status for resolving ComAgent unavailability.

Error Code 509

Description	Session Not Found - session record doesn't exist for given session ID.
Associated P-DRA Alarm/Event	Event 22705 - SBR Error Response Received By Policy DRA (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*SbrFindSessDbErr*
Associated Diameter Interface / Message Type	• Gx CCR-I, CCR-U, and CCR-T • Rx AAR, STR • Gx-Prime CCR-I, CCR-U, and CCR-T
GUI Configurable	Yes

Recovery

1. Check*findSession Response Processing* and *AAR Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Check the **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 22716 - SBR Audit Statistics Report to find the Session table to see if sessions were removed by audit.
3. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, measurements *SbrExpiredSessionsFound*, *SbrCreateSessDbErr*, and *SbrRemSessRarAttempts*.
4. Check if topology hiding applies to the policy client.

   Note: All checks may help to determine whether the session was never created, or was created, but removed by audit.

Error Code 305

Description	Policy DRA Unavailable
Associated P-DRA Alarm/Event	Alarm 22500 - DSR Application Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)
Associated Measurement	*RxApplUnavailableForRequest*
Associated Diameter Interface / Message Type	• All Gx requests • All Rx Requests • All Gx-Prime Requests
GUI Configurable	Yes

Recovery

1. Go to the P-DRA SOAM GUI at **Main Menu** > **Diameter** > **Maintenance** > **Applications** to verify Policy DRA's admin state is set as expected.
2. Check the **Main Menu** > **Diameter** > **Maintenance** > **Applications** to verify Policy DRA's Operational Status and Congestion Level. Policy DRA's Operational Status is "Unavailable" when the operator has removed Policy DRA from service (Admin State is "Disabled").
3. Check **Main Menu** > **Alarms & Events** > **View History** for relevant events or alarms related to this DA-MP server.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, measurement *RxApplUnavailableForAnswer*.

Error Code 305

Description	Policy DRA Degraded
Associated P-DRA Alarm/Event	Alarm 22501 - DSR Application Degraded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)
Associated Measurement	*RxApplUnavailableForRequest*
Associated Diameter Interface / Message Type	• All Gx requests • All Rx Requests • All Gx-Prime Requests
GUI Configurable	Yes

Recovery

1. Go to the P-DRA SOAM GUI at **Main Menu** > **Diameter** > **Maintenance** > **Applications** to verify Policy DRA's admin state is set as expected.

2. Check the **Main Menu** > **Diameter** > **Maintenance** > **Applications** to verify Policy DRA's Operational Status and Congestion Level. Policy DRA's Operational Status is "Unavailable" when the operator has removed Policy DRA from service (Admin State is "Disabled").
3. Check **Main Menu** > **Alarms & Events** > **View History** for relevant events or alarms related to this DA-MP server.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, measurement *RxApplUnavailableForAnswer*.

Error Code 522

Description	Session ID is missing from Request
Associated P-DRA Alarm/Event	Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*RxPdraRequestProtocolErr*
Associated Diameter Interface / Message Type	• All Gx requests • All Rx Requests • All Gx-Prime Requests
GUI Configurable	No (Result Code 5005)

Recovery

1. Check *Diameter Message Validation* and *CCR-I Processing without PCRF Pool* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the Policy DRA SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 22700 - Protocol errors in Diameter Requests).
3. Use the Origin-Host value of the received Request found in 22700 - Protocol errors in Diameter Requests to understand from where the Request was sent.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Error Code 523

Description	CC-Request-Type AVP is missing from CCR message
Associated P-DRA Alarm/Event	Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*RxPdraRequestProtocolErr*
Associated Diameter Interface / Message Type	Gx CCR-I, CCR-U, and CCR-T

GUI Configurable	No (Result Code 5005)

Recovery

1. Check *CCR Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the Policy DRA SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Event (in particular, 22700 - Protocol errors in Diameter Requests).
3. Use the Origin-Host value of the received Request found in 22700 - Protocol errors in Diameter Requests to understand from where the Request was sent.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Error Code 525

Description	Invalid AVP value in request message
Associated P-DRA Alarm/Event	Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*RxPdraRequestProtocolErr*
Associated Diameter Interface / Message Type	• All Gx requests • All Rx Requests • All Gx-Prime Requests
GUI Configurable	No (Result Code 5004)

Recovery

1. Check *CCR Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the Policy DRA SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, 22700 - Protocol errors in Diameter Requests).
3. Use the Origin-Host value of the received Request found in 22700 - Protocol errors in Diameter Requests to understand from where the Request was sent.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Error Code 506

Description	Destination-Host AVP is missing in in-session request

Associated P-DRA Alarm/Event	Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*RxPdraRequestProtocolErr*
Associated Diameter Interface / Message Type	• Gx CCR-U and CCR-T • Rx AAR, STR • Gx-Prime CCR-U, and CCR-T
GUI Configurable	No (Result Code 5012)

Recovery

1. Check *STR Processing* and *ASR/ASA Processing* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the Policy DRA SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Event (in particular, 22700 - Protocol errors in Diameter Requests).
3. Use the Origin-Host value of the received Request found in 22700 - Protocol errors in Diameter Requests to understand from where the Request was sent.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Error Code 530

Description	Application ID unsupported by Policy DRA
Associated P-DRA Alarm/Event	Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*RxPdraRequestProtocolErr*
Associated Diameter Interface / Message Type	Diameter Requests
GUI Configurable	No (Result Code 3007)

Recovery

1. Check *Diameter Message Validation* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the Policy and Charging SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, Event 22700 - Protocol errors in Diameter Requests).
3. Use the Origin-Host value of the received Request found in Event 22700 - Protocol errors in Diameter Requests to understand from where the Request was sent.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Error Code 531

Description	Command Code doesn't match the App ID or doesn't exist
Associated P-DRA Alarm/Event	Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)
Associated Measurement	*RxPdraRequestProtocolErr*
Associated Diameter Interface / Message Type	Diameter Requests
GUI Configurable	No (Result Code 5019)

Recovery

1. Check *Diameter Message Validation* in the Error Resolution appendix of the *Policy and Charging Application User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the Policy DRA SOAM GUI at **Main Menu** > **Alarms & Events** > **View History** and set the Display Filter by Events (in particular, Event 22700 - Protocol errors in Diameter Requests.
3. Use the Origin-Host value of the received Request found in Event 22700 - Protocol errors in Diameter Requests to understand from where the Request was sent.
4. Get the measurement report from **Main Menu** > **Measurements** > **Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

Glossary

A

AAR	Authentication, Authorization Request (Rx Diameter command)
ACK	Data Acknowledgement
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.
APN	Access Point Name The name identifying a general packet radio service (GPRS) bearer service in a GSM mobile network. See also GSM.
ASP	Application Server Process A process instance of an Application Server. An Application Server Process serves as an active or standby process of an Application Server (for example, part of a distributed virtual switch or database). Examples of ASPs are processes (or process instances of) MGCs, IP SCPs or IP HLRs. An ASP contains an SCTP end-point, and may be configured to process

A

	signaling traffic within more than one Application Server.
ASR	Abort-Session-Request
Association	An association refers to an SCTP association. The association provides the transport for protocol data units and adaptation layer peer messages.
AVP	Attribute-Value Pair The Diameter protocol consists of a header followed by one or more attribute-value pairs (AVPs). An AVP includes a header and is used to encapsulate protocol-specific data (for example, routing information) as well as authentication, authorization or accounting information.

C

CCA	Credit Control Answer The Diameter message that is received from the prepaid rating engine to acknowledge a CCR command.
CCR	Credit Control Request A Diameter message to be sent to a prepaid rating engine to request credit authorization for an SMS.
CdPA	Called Party Address - The field in the SCCP portion of the MSU that contains the additional addressing information of the destination of the MSU. Gateway screening uses this additional information to

C

	determine if MSUs that contain the DPC in the routing label and the subsystem number in the called party address portion of the MSU are allowed in the network where the EAGLE is located.
ComAgent	Communication Agent A common infrastructure component delivered as part of a common plug-in, which provides services to enable communication of message between application processes on different servers.
COMCOL	Communications Core Object Library A suite of re-usable C++ libraries, as well as processes and procedures available for use in Oracle products. Many of its features are focused toward the communications area of software developments, although it purpose is not intended to restrict its functionality to any particular area.
Communication Agent	See ComAgent.

D

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

D

DCL	Diameter Connection Layer The software layer of the stack which implements Diameter transport connections.
DEA	Diameter Edge Agent Device through which LTE roaming signaling traffic is funneled to protect network element addresses from being exposed to third parties.
Diameter	Diameter can also be used as a signaling protocol for mobility management which is typically associated with an IMS or wireless type of environment. Diameter is the successor to the RADIUS protocol. The MPE device supports a range of Diameter interfaces, including Rx, Gx, Gy, and Ty. Protocol that provides an Authentication, Authorization, and Accounting (AAA) framework for applications such as network access or IP mobility. Diameter works in both local and roaming AAA situations. Diameter can also be used as a signaling protocol for mobility management which is typically associated with an IMS or wireless type of environment.
DIH	Diameter Intelligence Hub A troubleshooting solution for LTE, IMS, and 3G Diameter traffic processed by the DSR. DIH does not require separate probes or taps.
DM-IWF	Diameter MAP–Interworking

D

	DSR application that translates Diameter messages into MAP messages.
DOIC	Diameter Overload Indication Conveyance
DP	Data Processor The repository of subscriber data on the individual node elements. The DP hosts the full address resolution database.
DRL	Diameter Routing Layer - The software layer of the stack that implements Diameter routing.
DRST	Destination Restricted
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.
DTLS	Datagram Transport Layer Security
DUNA	Destination Unavailable
DUPU	Destination User Part Unavailable An M3UA management message.

E

E

EMR	Egress Message Rate
EPT	Egress Pending Transaction The number of transactions pending for answers on a connection or peer (or a group of connections/peers).
ETG	Egress Throttle Group (s)
ETG-PCL	Egress Throttle Group Pending Transaction Limiting Congestion Level ETG-PCL of 0 denotes that the state of Rate Pending Transaction Congestion Limiting function is Normal. ETC-PCL of X (X>0) denotes that Requests of Priority less than X will not be allowed to send to Peers or Diameter Connections in that ETG.
ETG-RCL	Egress Throttle Group - Rate Limiting Congestion Level. ETG-RCL of 0 denotes that state of Rate Limiting function is Normal. ETG-RCL of X (X > 0) denotes that Requests of Priority less than X will not be allowed to send to Peers or Diameter Connections in that ETG.
ETL	Egress Throttle List
ETL-PCL	Egress Throttle List - Pending Transaction Limiting Congestion Level. ETL-PCL of 0 denotes that the state of Pending Transaction Congestion Limiting function is Normal. ETL-PCL of X

E

	(X >0) denotes that Requests of Priority less than X will not be allowed to send to Peers or Diameter Connections in that ETL's ETGs.
ETL-RCL	Egress Throttle List - Rate Limiting Congestion Level. ETL-RCL of 0 denotes that the state of Rate Limiting function is Normal. ETL-RCL of X (X > 0) denotes that Requests of Priority less than X will not be allowed to send to Peers or Diameter Connections in that ETL's ETG.
ETL-PCL	

F

FABR	Full Address Based Resolution Provides an enhanced DSR routing capability to enable network operators to resolve the designated Diameter server addresses based on individual user identity addresses in the incoming Diameter request messages.

G

GGA	Get-Gateway-Answer A reply to a GGR. It contains session information for the subscriber present in the GGR.GGA includes the bindings for the subscriber such as, Access Point Name, PCEF FQDN, and Creation timestamp. The session information is aggregated in the GGA based on the PCRF to which is it assigned.
GGR	Get-Gateway-Request

G

	A request for information for either an IMSI or an MSISDN. Only one subscriber (IMSI or MSISDN) is allowed to be queried per GGR. The GGR is generated by the GQC.
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.
GT	Global Title Routing Indicator
GTI	Global Title Indicator
Gx	The Diameter credit control based interface between a PCRF and a PCEF as defined by 3GPP. The interface is used to convey session information from the PCEF to the PCRF, and in reply the PCRF provides rule information for the PCEF to enforce.

H

HSS	Home Subscriber Server A central database for subscriber information.

I

I

IDIH	Integrated Diameter Intelligence Hub
IMSI	International Mobile Station Identity A unique internal network ID identifying a mobile subscriber.
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	International Telecommunications Union An organization that operates worldwide to allow governments and the private telecommunications sector to coordinate the deployment and operating of telecommunications networks and services. The ITU is responsible for regulating, coordinating and developing international telecommunications, and for harmonizing national political interests.
IWF	InterWorking Function

M

M

MD-IWF	MAP-Diameter Interworking SS7 Application, which translates MAP messages into Diameter messages
Message Processor	See MP
MME	Mobility Management Entity
MP	Message Processor - The role of the Message Processor is to provide the application messaging protocol interfaces and processing. However, these servers also have OAM components. All Message Processors replicate from their Signaling OAM's database and generate faults to a Fault Management System.

N

NOAM	Network Operations, Administration, and Maintenance

O

OLR	Overload report

P

PCRF	Policy and Charging Rules Function The ability to dynamically control access, services, network capacity, and charges in a network. Maintains rules regarding a subscriber's use of network resources. Responds to CCR and AAR messages. Periodically sends RAR messages. All policy sessions for a given subscriber, originating anywhere in the network, must be processed by the same PCRF.

P

	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.
P-DRA	Policy DRA
pSBR	Policy SBR
PTR	Pending Transaction Record

R

Range Based Address Resolution	See RBAR.
RAR	Re-Authorization Request (Gx or Rx Diameter command)
RBAR	Range Based Address Resolution A DSR enhanced routing application which allows you to route Diameter end-to-end transactions based on Application ID, Command Code, Routing Entity Type, and Routing Entity address ranges.
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,

R

	and are capable of handling any Diameter application or message type.
RI	Routing Indicator

S

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.
SCON	Signaling Congested
SCTP	Stream Control Transmission Protocol 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.
SG	Signaling Gateway A network element that receives/sends SCN native signaling at the edge of the IP network. The SG function may

S

	relay, translate or terminate SS7 signaling in an SS7-Internet Gateway. The SG function may also be coresident with the MG function to process SCN signaling associated with line or trunk terminations controlled by the MG (for example, signaling backhaul). A Signaling Gateway could be modeled as one or more Signaling Gateway Processes, which are located at the border of the SS7 and IP networks. Where an SG contains more than one SGP, the SG is a logical entity and the contained SGPs are assumed to be coordinated into a single management view to the SS7 network and to the supported Application Servers.
SGSN	Serving GPRS Support Node
SOAM	System Operations, Administration, and Maintenance
STP	Signal Transfer Point The STP is a special high-speed switch for signaling messages in SS7 networks. The STP routes core INAP communication between the Service Switching Point (SSP) and the Service Control Point (SCP) over the network.
STR	Send_to_Resource AIN message Session Termination Request (Rx Diameter command)

T

TSA	Target Set Address

T

	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.
TTR	Triggerless TCAP Relay Trace Transaction Record - A record describing a Diameter transaction, including all of the Diameter messages that were part of the transaction, plus the operations performed by DSR while processing those messages.

U

Untrusted Network	A Diameter network which has topology information hidden by the Topology Hiding features.

X

XUDT	Extended Unit Data