

**Oracle® Communications
Diameter Signaling Router**

Feature Notice Release 6.0

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Oracle® Communications Feature Notice Release 6.0

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Release Content

Introduction

Diameter Signaling Router (DSR) is a core Diameter signaling and routing solution for operators' LTE, IMS, and 3G networks. This Feature Notice includes feature descriptions, provides the hardware baseline for this release, and explains how to find customer documentation on the Customer Support Site.

Feature notices are distributed to customers with each new release of software.

This Feature Notice includes the following topics:

- *Active/Standby Peer Node Support*
- *Allow duplicates IP addresses on non-routable networks*
- *Configurable Disable of CEx Peer IP Validation*
- *DSR NOAM/SDS 32 Node Support*
- *DSR 60,000 maximum message/AVP size*
- *DSR RMS Support for Sun Netra*
- *Dual Path HA enhancements*
- *Gateway Location Application (GLA)*
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- *P-DRA support for Gx'*
- *Mediation: Specifying peer and connections in conditions*
- *SCTP/TCP Measurements*

Active/Standby Peer Node Support

This feature enables DSR to provide flexibility for Active/Standby peer node deployment and supports predictable routing for server split brain.

- Supports selective suppression of DSR "Connection Unavailable" alarms to prevent persistent Alarm conditions
 - Suppress normally Standby connection(s) -OR- suppress all Active and Standby connections and rely on Peer Node alarms
- Supports threshold-based suppression of DSR connection initiation attempts
 - Cease initiating Diameter connection(s) toward the Standby if sufficient connections are in-service to the Active
- Supports the following routing options when both components of an Active-Standby network element become Active (i.e. split brain):
 - Route traffic to preferred Active server
 - Route traffic to last known Active server (ie. traffic is not switched back to preferred server)

Allow duplicates IP addresses on non-routable networks

This feature allows duplicate IP addresses to be provisioned for a non-routable (private) network.

OAM tracks the route-ability of each network. Uniqueness across sites will continue to be enforced for routable networks.

Configurable Disable of CEx Peer IP Validation

This feature supplies support to NAT'd networks, by enabling DSR to provide a user-configurable option to disable the validation of the source IP against the Host-IP-Address AVP(s) in a received Diameter CER or CEA message.

DSR NOAM/SDS 32 Node Support

This feature enables the DSR NOAM and SDS to support management of up to 32 DSR Signaling Network Elements.

DSR 60,000 maximum message/AVP size

This feature extends the maximum Diameter message/AVP size supported to 60,000.

DSR RMS Support for Sun Netra

This feature allows the DSR Rack-Mount Server solution to be deployed on Oracle's Netra Server X3-2 Server Architecture. This includes small-scale deployment of DSR NOAM, SOAM, IPFE, DA-MP, PM&C, SS7-MP, and IDIH.

Dual Path HA enhancements

This feature enables a server to join a cluster even if the replication path has failed and the secondary heartbeat path is up. In this case, the server joining the cluster would recognize that an active server already exists for that cluster and would not promote itself to an active role. Once the replication path is restored, the new server would be brought into synch with the active server and would assume a non-active (standby/spare) role.

Gateway Location Application (GLA)

The Gateway Location Application (GLA) is a DSR Application that retrieves subscriber data stored in Policy Session Binding Repository (pSBR) provided by Policy DRA.

Upon the receipt of a GGR (Get Gateway Request) from a Gateway Query Client, the GLA application extracts the subscriber information (IMSI or MSISDN) from the Request and queries the pSBR (via ComAgent). Based on the result of the query, the GLA generates an Answer (Get Gateway Answer (GGA)) with subscriber information that includes the number of bindings for the subscriber, and the following information is included for each session:

- Access Point name
- PCEF FQDN
- Creation timestamp

Integrated DIH

This feature enhances the current DIH capability to support analysis of 100% of the Diameter traffic traversing the DSR for trace filter matching. In addition, IDIH provides a more integrated diagnostic / troubleshooting user experience and allows viewing and export of traced transactions which contain

internal DSR message processing details such as ingress/egress peer/connection, routing rules used, applications invoked, errors encountered, and more.

MAP-Diameter IWF - Base

This feature defines common requirements for any MAP-Diameter IWF (Inter-Working Function) use case on the DSR. It also specifies the related mechanisms for the IWF, including message routing.

MAP-Diameter IWF - EIR

This feature defines interworking between MAP-based Gf and Diameter-based S13 and S13a interfaces.

MAP-Diameter IWF - Mobility Management

This feature defines interworking between MAP-based Gr and Diameter-based S6a and S6d interfaces. For each IWF (Inter-Working Function) scenario, it defines the mapping of related procedures and corresponding parameter handling.

Diameter MAP IWF on RMS

This feature enables support for Diameter MAP IWF on rack-mount servers.

Mediation Investments

The Mediation feature includes the following enhancements:

- Support for checking of ranges on numbers - The Unsigned64Range is a right value that is added to right-hand operands. It allows the user to enter two numbers that fit into Unsigned32 and Unsigned64 datatypes, separated by a dash "-".
- Support for a Set/Add AVP action where the AVP is set, if present, and added, if not present - This Action allows changing the value of an AVP if it is found in the message or adding an AVP if it is not found in the message.
- Bit Set/Reset Operations on AVPs in Actions - The Action allows setting/resetting the specified bit of the AVP.
- Import/Export of multiple Templates - This feature allows the user to Export more than one template into one xml file. The Import feature allows more than one newly imported Rule Templates to appear on the "Rule Templates" screen, "State & Properties" screen and new screens appear under the Rule Sets menu item.

- Ability to push templates to individual MPs - This new enhancement allows activating a template (rule set) either on all MPs under the given SO or only on the specific MP(s) under the given SO. This is achieved by scoping the template on the triggering screen. The MP checks the Rule Templates and the provisioned Rule Sets associated with that MP at the Execution Trigger point when a CAPM triggering point is hit during the message processing.
- Support for internal variables - The Internal Variables feature is new addition to the Mediation GUI tree. The feature allows the user to use internally defined variables in Conditions and Actions across any template and at any trigger point in a transaction. Internal variables represent buffers distinguished by the names and can store data of the specified format. Other enhancements include a new action "Set Internal Variable" and ability to store the instance number of the matched AVP.
- Discard Request with optional Answer - The Abandon Request and Send Answer Message Actions are two features that provides discard request with optional answer. The Abandon Request allows for a silent drop request. The action is supported by Request triggers only. The Send Answer Message allows rejecting the request with a configurable answer. The user can set the Result-Code AVP or the Experimental-Result-Code AVP together with the Vendor-Id AVP. Additionally the user can specify the value for the Error-Message AVP. The action is supported by Request triggers only.
- Action to set Destination-Realm from IMSI - This Action populates Destination-Realm AVP based on the IMSI value present in the Request. The Set Destination-Realm action retrieves the IMSI value from the Subscription-ID and User Name.

Mediation Support for Explicit Casting

This is a new function where Type is one of the Diameter data types, the value is converted to the enforced format if possible, if the specified xl-value contains and explicit casting function "Type" (<value>).

Mediation: Specifying peer and connections in conditions

This feature addresses conditions that now support the testing of Connections and Peer Nodes. Connections provide the ability to specify the connection in the conditions and the Peer Nodes provide the ability to specify the peer in the conditions.

Mediation: TBCD (MSISDN encoding and decoding)

This feature supports the TBCD_decode and TBCD_encode functions of the Conditions in a Rule Template. The TBCD_decode function is an enhancement use to specify octet string to decode to the UTF8String from TBCD format. The TBCD_encode function is an enhancement use to specify octet string to encode to the UTF8String from TBCD format.

Mediation: Visited PLMN-ID (MCC and MNC support)

This feature provides the ability to verify the value of MCC and MNC in Visited-PLMN-Id in the Actions of the Rules Templates.

Mediation: AND/OR support in Conditions

This feature evaluates the conditions of a condition set, when the Conditions are ANDed, ORed, or in a Complex Expression. The system labels each condition with labels "A" (first condition) thru "E" (fifth condition).

Mediation: Mark "Actions" as optional

This feature provides the user to mark the Actions as Optional as part of the Rule Template. This action does not require the user to enter a value for that action when the corresponding rules are being administered.

Mediation: Setting message priority and route list from Mediation

This feature addresses the Route List and Message Priority, which are new Actions in the Rule Template.

The Message Priority provides the ability to check the message priority by the new selection @msg.priority. The Set Request Priority indicates priority assigned to the request, when the Action Set is applied and the action "Set Request Priority" is present.

The Route List id and ART flag are provided to DRL, when the Action Set is applied and action "Set Route List" is present.

Support for identifying MSISDNs in FABR that do not include a + sign in the front

This feature enhances the logic in FABR to support ways of determining if an AVP is actually carrying an IMSI or a MSISDN without relying on the "+" sign for identification.

Support for identifying MSISDNs in RBAR that do not include a + sign in the front

This feature enhances the logic in RBAR to support ways of determining if an AVP is actually carrying an IMSI or a MSISDN without relying on the "+" sign for identification.

P-DRA Error Message AVPs

P-DRA Error Message AVP enhancement includes 3-digit error codes in the Diameter Error-Message AVPs that indicate which error scenarios are encountered when processing Diameter messages.

A 3-digit error code is an identifier to uniquely identify a specific error scenario (not error category) encountered in a Diameter Answer message generated by P-DRA. 3-digit codes are unique across all DSR layers (DSR connection layer, routing layer and application layer) and all DSR applications (P-DRA, RBAR, FABR etc.) for errors they represent. The ranges of 500-549 and 850-899 are for P-DRA application, while DSR connection layer, routing layer and other DSR applications uses other non-overlapping ranges. Multiple errors may belong to a same error category and are associated with a same Result-Code. It is the 3-digit code that can distinguish an error from others. Users should search for the 3-digit code when a Diameter Error response is received from DSR to identify an error, if possible and available.

P-DRA routing to PCRF pools

The Policy DRA now allows selection of a set of PCRFs, called a PCRF Pool, based on the Access Point Network (APN) from which a session initiation request is originated. This allows policy signaling from a given APN to be routed to a set of PCRFs specifically designated to handle that signaling. The selection of a PCRF from within the PCRF Pool is performed using an even or weighted load distribution.

In addition, the PCRF Pooling feature supports flexible routing to divert a portion of policy traffic to a subset of the PCRF Pool for purposes of proving in a new PCRF capability or set of policies. This is done by creating a Sub-Pool, which is selected using the combination of the PCRF Pool selected (by APN) and the Origin-Host of the policy client that originated the session initiation request. This allows for routing of policy signaling from a given APN and Origin-Host to a smaller set of PCRFs on which the new capability is being introduced, thus reducing risk of unintended consequences.

When a subscriber is bound to a PCRF from the PCRF Pool chosen on the basis of APN, all sessions for that subscriber initiated from that APN are routed to that PCRF. When a subscriber is bound to a PCRF from a Sub-Pool chosen by the combination of APN and Origin-Host, all sessions for that subscriber initiated from that APN and Origin-Host are routed to that PCRF.

Backwards compatibility with the prior release of P-DRA, which only supported one pool of PCRFs, is provided by allowing all APNs to be mapped to a single PCRF Pool.

P-DRA support for Gx'

The Gx' interface is supported on the Policy DRA (P-DRA). Gx' is a binding dependent interface on the P-DRA, which supports any Gx based binding dependent interfaces that originate from the DPI/MOS elements.

In a network deploying the Gx' interface, P-DRA routes Gx' sessions to the bound PCRFs, where the Gx/Gxx sessions bind the policy clients and the PCRFs.

SCTP/TCP Measurements

This feature provides the user with new SCTP measurements and their equivalents for the TCP protocol to be used for troubleshooting connections on the DSR.

Resources and Services

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.

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1. Select **2** for New Service Request
2. Select **3** for Hardware, Networking and Solaris Operating System Support
3. Select **2** for Non-technical issue

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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

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The **Oracle Communications Documentation** window opens with Tekelec shown near the top.
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4. Navigate to your Product and then the Release Number, and click the **View** link (the **Download** link will retrieve the entire documentation set).
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