

**Oracle® Communications  
Diameter Signaling Router**

Measurements Reference

**E68462 Revision 01**

June 2016

## Oracle Communications Diameter Signaling Router Measurements Reference

Copyright © 2011, 2016, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

# Table of Contents

<b>Chapter 1: Introduction.....</b>	<b>42</b>
Overview.....	43
Scope and Audience.....	43
Manual Organization.....	43
Documentation Admonishments.....	43
Related Publications.....	44
Locate Product Documentation on the Oracle Help Center Site.....	44
Customer Training.....	45
My Oracle Support (MOS).....	45
Emergency Response.....	45
<b>Chapter 2: User Interface Introduction.....</b>	<b>47</b>
User Interface Organization.....	48
User Interface Elements.....	49
Main Menu Options.....	50
Missing Main Menu options.....	54
Common Graphical User Interface Widgets.....	55
Supported Browsers.....	55
System Login Page.....	55
Main Menu Icons.....	57
Work Area Displays.....	58
Customizing the Splash Page Welcome Message.....	61
Column Headers (Sorting).....	61
Page Controls.....	61
Clear Field Control.....	62
Optional Layout Element Toolbar.....	62
Filters.....	63
Pause Updates.....	66
Max Records Per Page Controls.....	66
<b>Chapter 3: Measurements Overview.....</b>	<b>67</b>
Help Organization.....	68
Measurements Warning.....	68

Displaying the file list.....	68
Opening a file.....	68
Data Export.....	69
Data Export elements.....	69
Configuring data export.....	71
Tasks.....	71
Active Tasks.....	72
Scheduled Tasks.....	75
My Oracle Support (MOS).....	77

## **Chapter 4: Measurements.....78**

General measurements information.....	81
Measurements.....	81
Measurement elements.....	81
Generating a measurements report.....	82
Measurements data export elements.....	83
Exporting measurements reports.....	84
Address Resolution Exception measurements.....	85
RxRbarDecodeFailureResol.....	87
RxRbarInvalidImsiMcc.....	87
RxRbarResolFailAll.....	87
RxRbarResolFailCmdcode.....	88
RxRbarResolFailDbFail.....	88
RxRbarResolFailImpiMatch.....	89
RxRbarResolFailImpuMatch.....	89
RxRbarResolFailImsiMatch.....	90
RxRbarResolFailIpv4Match.....	90
RxRbarResolFailIpv6prefixMatch.....	91
RxRbarResolFailMsisdnMatch.....	91
RxRbarResolFailNoAddrAvps.....	92
RxRbarResolFailNoValidAddr.....	92
RxRbarResolFailUnsigned16Match.....	93
RxRbarTransactionsRejected.....	93
RxRbarUnkApplId.....	94
TxRbarAbandonRequest.....	94
Address Resolution Performance measurements.....	95
RxRbarAvgMsgSize.....	96
RxRbarMsgs.....	96
RxRbarResolAll.....	97
RxRbarResolAllMp.....	97

RxRbarResolImpi.....	97
RxRbarResolImpu.....	98
RxRbarResolImsi.....	98
RxRbarResolIpv4.....	99
RxRbarResolIpv6prefix.....	99
RxRbarResolMsisdn.....	99
RxRbarResolRateAvg.....	100
RxRbarResolRatePeak.....	100
RxRbarResolSingleAddr.....	101
RxRbarResolUnsigned16.....	101
TxRbarFwdDefaultDest.....	101
TxRbarFwdNochange.....	102
TxRbarFwdSuccess.....	102
TxRbarMsgAttempt.....	103
Application Routing Rules measurements.....	103
RxApplRuleSelected.....	104
RxApplRuleFwdFailAll.....	104
RxApplRuleFwdFailUnavail.....	105
RxApplRuleDuplicatePriority.....	105
RxArtSelected.....	106
Association Exception measurements.....	106
RxAsnFarEndClose.....	107
EvAsnManClose.....	108
EvAsnNoRespClose.....	109
EvTrCnxFail.....	109
TxAsnSendFail.....	110
RxAsnRecvFailed.....	111
EvTrSockInitFail.....	111
RxAsnM3uaERROR.....	112
EvAsnUpAckTO.....	112
RxAsnUnsolDownAck.....	113
RxAsnInvalidM3ua.....	114
TmSingleTransQueueFull.....	114
EvSctpAdjPToDwn.....	115
EvSctpTransRej.....	115
Association Performance measurements.....	116
TxTrOctets.....	116
RxTrOctets.....	117
SCTPAssocQueuePeak.....	117
SCTPAssocQueueAvg.....	118
Association Usage measurements.....	118

EvAsnCnxSuccess.....	119
TmAsnBlkNotDown.....	119
TmAsnEnaNotUp.....	120
Communication Agent (ComAgent) Exception measurements.....	121
CADataFIFOQueueFul.....	124
CADSTxDscrdCong .....	125
CAHSRsrcErr.....	126
CAHSTxDscrdCongSR.....	126
CAHSTxDscrdIntErrSR.....	127
CAHSTxDscrdUnavailSR.....	127
CAHSTxDscrdUnknownSR.....	128
CAHSTxDscrdUnkwnRsrc.....	128
CAHSTxRsrc.....	129
CAMxFIFOQueueFul.....	129
CAPSTxDscrdUnkwnGrp.....	130
CAPSTxDscrdUnavailGrp.....	130
CAPSTxDscrdCongPeer.....	131
CARsrcPoolFul .....	131
CARSTxDscrdCong .....	132
CARSTxDscrdInternalErr.....	132
CARSTxDscrdSvcUnavail .....	133
CARxDiscUnexpEvent .....	133
CARxDscrdBundle.....	134
CARxDscrdConnUnavail.....	134
CARxDscrdDecodeFailed .....	135
CARxDscrdIncompat .....	135
CARxDscrdInternalErr .....	136
CARxDscrdLayerSendFail .....	136
CARxDscrdMsgLenErr .....	136
CARxDscrdUnkServer .....	137
CARxDscrdUnkStkLyr .....	137
CARxMsgUnknown .....	138
CAStackQueueFul .....	138
CATransDscrdInvCorrId .....	139
CATransDscrdStaleErrRsp .....	139
CATransEndAbnorm .....	140
CATransEndAbnormRateAvg .....	140
CATransEndAbnormRateMax .....	141
CATransEndAnsErr .....	141
CATransEndErr .....	142
CATransEndNoResources.....	142

CATransEndNoResponse.....	143
CATransEndUnkwnSvc.....	143
CATransEndUnregSvc .....	144
CATransNoReTxMaxTTL.....	144
CATransRetx .....	145
CATransReTxExceeded.....	145
CATransStaleSuccessRsp .....	146
CATransTTLExceeded.....	146
CATxDscrdBundle.....	147
CATxDscrdConnUnAvail.....	147
CATxDscrdDestUserIncompat.....	148
CATxDscrdEncodeFail.....	148
CATxDscrdInternalErr .....	149
CATxDscrdMxSendFail.....	149
CATxDscrdUnknownSvc .....	150
CATxDscrdUnkServer .....	150
CATxDscrdUnregSvc .....	150
Communication Agent (ComAgent) Performance measurements.....	151
CAAvgDataFIFOQueueUtil.....	153
CAAvgMxFIFOQueueUtil.....	154
CAAvgQueueUtil .....	154
CAAvgRsrcPoolUtil .....	155
CAAvgRxStackEvents .....	155
CAAvgTxStackEvents .....	156
CADSTx .....	156
CAHSTxRsrc.....	156
CAHSTxRsrcRateAvg.....	157
CAHSTxRsrcRateMax.....	157
CAPeakDataFIFOQueueUtil.....	158
CAPeakMxFIFOQueueUtil.....	158
CAPeakQueueUtil .....	159
CAPeakRsrcPoolUtil .....	159
CAPeakRxStackEvents .....	160
CAPeakTxStackEvents .....	160
CAPSTxGrp.....	160
CAPSTxGrpSuccess.....	161
CARSTx .....	161
CARx.....	162
CARxBundled.....	162
CARxEventsBundled.....	162
CARxSuccess.....	163

CATransEndAbnorm .....	163
CATransEndAbnormRateAvg .....	164
CATransEndAbnormRateMax .....	164
CATransEndNorm.....	165
CATransPendingAvg .....	165
CATransPendingMax .....	165
CATransRateAvg .....	166
CATransRateMax .....	166
CATransStarted .....	167
CATransTimeAvg .....	167
CATransTimeMax .....	167
CATx.....	168
CATxBundled.....	168
CATxEventsBundled.....	169
CATxSuccess.....	169
Computer Aided Policy Making (CAPM) measurements.....	169
CAPM_Temp_Invoked.....	170
CAPM_CondSet_True.....	171
CAPM_Action_Set_Fails.....	171
CAPM_Match_Rule.....	172
CAPM_MsgCopyTriggered.....	172
CAPM_RxRejectWithErrorAnswer.....	173
CAPM_RxSilentDiscard.....	173
CAPM_RxRedirectHost.....	173
CAPM_RxRedirectRealm.....	174
CAPM_RxProcessNAI.....	174
CAPM_Match_Rule.....	174
Connection Congestion measurements.....	175
RxRejectedConnCongestion.....	175
Connection Exception measurements.....	176
EvRxException.....	176
EvTxException.....	176
Connection Performance measurements.....	177
DclTxConnQueueAvg.....	179
DclTxConnQueuePeak.....	179
EcCL1.....	180
EcCL2.....	180
EcCL3.....	180
EcCL4.....	181
EcRateAvg.....	181
EcRatePeak.....	181



Ert.....	182
ErtDrop.....	182
Ic.....	183
IcDrop.....	183
IcRateAvg.....	184
IcRatePeak.....	184
IrtDrop.....	184
OcDrop.....	186
RadiusXactionFailAvg.....	186
RxAll.....	186
RxAllDrop.....	187
RxAllLenAvg.....	187
RxAllLenPeak.....	188
RxP0.....	188
RxP1.....	188
RxP2.....	189
RxP3.....	189
TmEcCL1.....	190
TmEcCL2.....	190
TmEcCL3.....	190
TmEcCL4.....	191
TxAll.....	191
TxAllDrop.....	191
TxAllLenAvg.....	192
TxAllLenPeak.....	192
TxConnTotalDataChunks.....	193
TxP0.....	193
TxP1.....	193
TxP2.....	194
TxP3.....	194
Connection Service measurements.....	195
EvException.....	195
EvFsmAdState.....	195
EvFsmException.....	196
EvFsmOpState.....	196
TmFsmOpStateAvailable.....	197
TmFsmOpStateDegraded.....	197
TmFsmOpStateUnavailable.....	197
Connection Transport measurements.....	198
RxBufAvg.....	198
RxBufPeak.....	199

RxOctets.....	199
RxSctpChunk.....	199
RxSctpDupTsn.....	200
RxSctpGapAck.....	200
RxTcpDupPkt.....	200
TxBufAvg.....	201
TxBufPeak.....	201
TxOctets.....	201
TxSctpChunk.....	202
TxSctpRtxChunk.....	202
TxTcpRtxSeg.....	202
DA-MP Exception measurements.....	203
MpEvRxException.....	203
MpEvTxException.....	204
DA-MP Performance measurements.....	204
DclTxTaskQueueAvg.....	212
DclTxTaskQueuePeak.....	212
MpCpuAvg.....	213
MpCpuCL1.....	213
MpCpuCL2.....	213
MpCpuCL3.....	214
MpCpuPeak.....	214
MpDiamAnsTimeAvg.....	215
MpDiamAnsTimePeak.....	215
MpDiamMsgPoolAvg.....	215
MpDiamMsgPoolPeak.....	216
MpDiamReqTimeAvg.....	216
MpDiamReqTimePeak.....	216
MpErt.....	217
MpErtDrop.....	217
MpIc.....	218
MpIcDrop.....	218
MpIcP0G.....	219
MpIcP0Y.....	219
MpIcP1G.....	220
MpIcP1Y.....	220
MpIcP2G.....	221
MpIcP2Y.....	221
MpIcP3.....	221
MpIrt.....	222
MpIrtDrop.....	222

MpMemCL1.....	223
MpMemCL2.....	224
MpMemCL3.....	224
MpOcDrop.....	224
MpOcDropP0G.....	225
MpOcDropP0Y.....	225
MpOcDropP1G.....	226
MpOcDropP1Y.....	227
MpOcDropP2G.....	227
MpOcDropP2Y.....	228
MpOcRateAvgP0.....	228
MpOcRateAvgP0G.....	229
MpOcRateAvgP0Y.....	229
MpOcRateAvgP1.....	229
MpOcRateAvgP1G.....	230
MpOcRateAvgP1Y.....	230
MpOcRateAvgP2.....	230
MpOcRateAvgP2G.....	231
MpOcRateAvgP2Y.....	231
MpOcRateAvgP3.....	231
MpOcRatePeakP0.....	232
MpOcRatePeakP0G.....	232
MpOcRatePeakP0Y.....	232
MpOcRatePeakP1.....	233
MpOcRatePeakP1G.....	233
MpOcRatePeakP1Y.....	233
MpOcRatePeakP2.....	234
MpOcRatePeakP2G.....	234
MpOcRatePeakP2Y.....	234
MpOcRatePeakP3.....	235
MpRadiusAnsTimeAvg.....	235
MpRadiusAnsTimePeak.....	236
MpRadiusMsgPoolAvg.....	236
MpRadiusMsgPoolPeak.....	236
MpRadiusReqTimeAvg.....	237
MpRadiusReqTimePeak.....	237
MpRxAll.....	238
MpRxAllDrop.....	238
MpRxAllRateAvg.....	239
MpRxAllRatePeak.....	239
MpRxDiamAll.....	239

MpRxDiamAllLen.....	240
MpRxDiamAllLenAvg.....	240
MpRxDiamAllLenPeak.....	240
MpRxDiamAllRateAvg.....	241
MpRxDiamAllRatePeak.....	241
MpRxDiamP0.....	241
MpRxDiamP1.....	242
MpRxDiamP2.....	242
MpRxDiamP3.....	242
MpRxRadiusAll.....	243
MpRxRadiusAllLen.....	243
MpRxRadiusAllLenAvg.....	244
MpRxRadiusAllLenPeak.....	244
MpRxRadiusAllRateAvg.....	245
MpRxRadiusAllRatePeak.....	245
MpRxRadiusP0.....	245
MpRxRadiusP3.....	246
MpTxAll.....	246
MpTxAllDrop.....	247
MpTxAllRateAvg.....	247
MpTxAllRatePeak.....	248
MpTxDiamAll.....	248
MpTxDiamAllLen.....	248
MpTxDiamAllLenAvg.....	249
MpTxDiamAllLenPeak.....	249
MpTxDiamAllRateAvg.....	249
MpTxDiamAllRatePeak.....	250
MpTxDiamP0.....	250
MpTxDiamP1.....	250
MpTxDiamP2.....	251
MpTxDiamP3.....	251
MpTxRadiusAll.....	251
MpTxRadiusAllLen.....	252
MpTxRadiusAllLenAvg.....	252
MpTxRadiusAllLenPeak.....	253
MpTxRadiusAllRateAvg.....	253
MpTxRadiusAllRatePeak.....	254
MpTxRadiusP0.....	254
MpTxRadiusP3.....	254
RclEtrPoolAvg.....	255
RclEtrPoolPeak.....	255

RclItrPoolAvg.....	255
RclItrPoolPeak.....	256
RclRxTaskQueueAvg.....	256
RclRxTaskQueuePeak.....	256
RclTxTaskQueueAvg.....	257
RclTxTaskQueuePeak.....	257
TmMpCpuCL1.....	258
TmMpCpuCL2.....	258
TmMpCpuCL3.....	258
TmMpMemCL1.....	259
TmMpMemCL2.....	259
TmMpMemCL3.....	259
TmRclEtrHoldTimeAvg.....	260
TmRclItrHoldTimeAvg.....	260
DA-MP Service measurements.....	261
MpEvException.....	261
MpEvFsmException.....	261
Diameter Signaling Router (DSR) Application Exception measurements.....	262
RxApplRequestNoRoutes.....	263
RxApplUnavailable.....	263
RxApplUnavailableForAnswer.....	264
RxApplUnavailableForRequest.....	265
TxCpaFullDRLRequestReject.....	265
TxCpaFullDRLAnswerDiscard.....	266
TxFabrFullDRLRequestReject.....	267
TxFabrFullDRLAnswerDiscard.....	267
TxRbarFullDRLRequestReject.....	268
TxRbarFullDRLAnswerDiscard.....	268
TxGlaFullDRLAnswerDiscard.....	269
Diameter Signaling Router (DSR) Application Performance measurements.....	269
RxApplAnswerFwdSuccess.....	272
RxApplAnswerReceived.....	273
RxApplRequestFwdSuccess.....	273
RxApplRequestReceived.....	274
RxCpaAnswerMsgQueueAvg.....	274
RxCpaAnswerMsgQueuePeak.....	274
RxCpaAnswerProcessed.....	275
RxCpaEventMsgQueueAvg.....	275
RxCpaEventMsgQueuePeak.....	275
RxCpaMsgRateAvg.....	276
RxCpaMsgRatePeak.....	276

RxCpaRequestMsgQueueAvg.....	277
RxCpaRequestMsgQueuePeak.....	277
RxCpaRequestProcessed.....	277
RxDmiwfRequestMsgQueuePeak.....	278
RxDmiwfRequestMsgQueueAvg.....	278
RxDmiwfAnswerMsgQueuePeak.....	279
RxDmiwfAnswerMsgQueueAvg.....	279
TxDmiwfFullDRLRequestReject.....	280
TxDmiwfFullDRLAnswerDiscard.....	280
RxDmiwfMsgRatePeak.....	281
RxDmiwfMsgRateAvg.....	281
RxDmiwfRequestProcessed.....	282
RxDmiwfAnswerProcessed.....	282
RxFabrMsgRateAvg.....	282
RxFabrMsgRatePeak.....	283
RxFabrRequestMsgQueueAvg.....	284
RxFabrRequestMsgQueuePeak.....	284
RxFabrRequestProcessed.....	285
RxGlaMsgRateAvg.....	285
RxGlaMsgRatePeak.....	286
RxGlaRequestMsgQueueAvg.....	286
RxGlaRequestMsgQueuePeak.....	287
RxGlaRequestProcessed.....	287
RxPcaRequestProcessed.....	287
RxPcaAnswerProcessed.....	288
RxPcaMsgRateAvg.....	288
RxPcaMsgRatePeak.....	289
RxRbarMsgRateAvg.....	289
RxRbarMsgRatePeak.....	290
RxRbarRequestMsgQueueAvg.....	290
RxRbarRequestMsgQueuePeak.....	291
RxRbarRequestProcessed.....	291
TxApplTransSuccess.....	292
Diameter Egress Transaction measurements.....	292
RxAnswerExpectedAll.....	293
RxAnswerMsgQueueFullDiscard.....	294
RxRedirectHostNotRouted.....	294
RxRedirectHostRouted.....	295
RxRedirectRealmNotRouted.....	295
RxRedirectRealmRouted.....	296
TxAnswerTimeout.....	296

TxAnswerTimeoutAllMp.....	297
TxAnswerTimeoutMp.....	297
TxConnectionFailed.....	298
TxConnAnswerMsgs.....	298
TxConnRequestMsgs.....	299
TxRequestSuccessAllConn.....	299
Diameter Exception measurements.....	299
EvAppIdListInconsistency.....	301
EvTransLifetimeExceededMp.....	302
EvTransRejectedByExternalNode.....	302
RxAnswerMsgQueueFullDiscard.....	303
RxAnswerUnexpected.....	303
RxAnswerUnexpectedAllMp.....	304
RxDOCRejectMp.....	304
RxMsgsOCGreenPri0DiscardMp.....	305
RxMsgsOCYellowPri0DiscardMp.....	305
RxMsgsOCGreenPri1DiscardMp.....	306
RxMsgsOCYellowPri1DiscardMp.....	307
RxMsgsOCGreenPri2DiscardMp.....	307
RxMsgsOCYellowPri2DiscardMp.....	308
TmConnDegraded.....	308
TmConnEnabledNotAvail.....	309
TxDtIsOversizedDiscard.....	310
TxReqMsgPerConnPtrMax.....	310
TxRequestEgressLoop.....	311
Diameter Ingress Transaction Exception measurements.....	311
RxArtRuleRejection.....	313
RxDecodeFailure.....	313
RxDOCDiscardMp.....	314
RxMessageLooping.....	315
RxNoRoutesFound.....	315
RxNoRulesFailure.....	316
RxPrtRuleRejection.....	317
RxRejectedAll.....	318
RxRejectedOther.....	318
RxRequestMsgQueueFullDiscard.....	319
RxTransactionTimeout.....	319
TxLongTimeoutPtrListEmpty.....	320
TxPtrListEmpty.....	320
TxRerouteQueueFullReject.....	321
Diameter Ingress Transaction Performance measurements.....	322

RxConnRequestMsgs.....	323
TxAnswer1xxx.....	323
TxAnswer2xxx.....	323
TxAnswer3xxx.....	324
TxAnswer4xxx.....	324
TxAnswer5xxx.....	325
TxAnswerFailure.....	325
TxAnswerLocalNode.....	326
TxAnswerOther.....	326
Diameter Performance measurements.....	327
EvPerConnPtrQueueAvg.....	328
EvPerConnPtrQueuePeak.....	329
EvRemoteBusy.....	329
EvTransSuccessByExternalNode.....	330
MpEvRadiusRoutedMsgs.....	330
RoutingMsgs.....	331
RxAnswerExpectedAll.....	332
RxAnswerExpectedAllMp.....	332
RxAnswerExpectedRoutedMp.....	333
RxConnRequestMsgs.....	333
RxDiam2DiamTransactionsCount.....	333
RxRequestMsgsMp.....	334
RxRequestNoErrors.....	334
RxRequestNoErrorsMp.....	335
TmConnAvail.....	335
TmHoldTimeDownstreamMp.....	335
TmRemoteBusy.....	336
TmResponseTimeDownstream.....	337
TmResponseTimeDownstreamMp.....	338
TmResponseTimeUpstream.....	338
TxConnAnswerMsgs.....	339
TxConnRequestMsgs.....	339
TxRequestSuccessAllMP.....	339
Diameter Rerouting measurements.....	340
RxRerouteAnswerRsp.....	340
RxRerouteAnswerRspMp.....	341
TxRerouteAnswerResponse.....	341
TxRerouteAnswerTimeout.....	342
TxRerouteAttempts.....	342
TxRerouteConnFailure.....	343
TxRerouteSuccessSent.....	343



DM-IWF Exception measurements.....	344
TxDmiwfMtoDRoutingFail.....	345
TxDmiwfDtoMRoutingFail.....	345
EvDmiwfDtoMtimeout.....	346
EvDmiwfPtrPoolExceeded.....	347
RxDmiwfSS7MPAnswerUnexpected.....	347
EvMdIwfSvcCongest.....	347
EvMdIwfError.....	348
EvMdIwfConnExhausted.....	348
RxDiscOnError.....	348
EvDmIwfTxFwdFail.....	349
EvDmiwfMsgSizeExceeded.....	349
RxDmiwfTransactionsRejected.....	350
DM-IWF Performance measurements.....	350
RxDmiwfDtoMTransCnt.....	351
RxDmiwfDtoMTransRateAvg.....	352
RxDmiwfDtoMTransRatePeak.....	352
RxDmiwfMtoDTransCnt.....	353
RxDmiwfMtoDTransRateAvg.....	353
RxDmiwfMtoDTransRatePeak.....	354
RxDmiwfTransactionRspQueuePeak.....	354
RxDmiwfTransactionRspQueueAvg.....	354
EvDmiwfPtrPoolPeak.....	355
EvDmiwfPtrPoolAvg.....	355
RxDmiwfRequestMessage.....	356
RxDmiwfAnswerMessage.....	356
TxDmiwfRequestMessage.....	356
TxDmiwfAnswerMessage.....	357
RxDmiwfRequestMessageIwf.....	357
RxDmiwfAnswerMessageIwf.....	357
TxDmiwfRequestMessageIwf.....	358
TxDmiwfAnswerMessageIwf.....	358
Egress Throttle Group Performance measurements.....	359
TxEtgMsgsLocal.....	360
TxEtgMsgRatePeak.....	360
TxEtgMsgRateAvg.....	361
EvEtgRateCongestionOnset.....	361
EvEtgRateDiscardPri0.....	362
EvEtgRateDiscardPri1.....	362
EvEtgRateDiscardPri2.....	363
EvEtgPendingTransPeak.....	364

EvEtgPendingTransAvg.....	364
EvEtgPendingTransCongestionOnset.....	364
EvEtgPendingTransDiscardPri0.....	365
EvEtgPendingTransDiscardPri1.....	366
EvEtgPendingTransDiscardPri2.....	366
Egress Throttle List Performance measurements.....	367
TxEtlMsgRatePeak.....	368
TxEtlMsgRateAvg.....	369
EvEtlRateCongestionOnset.....	369
EvEtlRateDiscardPri0.....	370
EvEtlRateDiscardPri1.....	370
EvEtlRateDiscardPri2.....	371
EvEtlPendingTransPeak.....	372
EvEtlPendingTransAvg.....	372
EvEtlPendingTransCongestionOnset.....	373
EvEtlPendingTransDiscardPri0.....	373
EvEtlPendingTransDiscardPri1.....	374
EvEtlPendingTransDiscardPri2.....	375
Full Address Based Resolution (FABR) Application Exception measurements.....	375
RxFabrBlacklistedImsi.....	376
RxFabrBlacklistedMsisdn.....	377
RxFabrDecodeFailureResol.....	377
RxFabrInvalidImsiMcc.....	378
RxFabrResolFailAll.....	378
RxFabrResolFailCmdcode.....	379
RxFabrResolFailDpCongested.....	379
RxFabrResolFailImpiMatch.....	379
RxFabrResolFailImpuMatch.....	380
RxFabrResolFailImsiMatch.....	380
RxFabrResolFailMsisdnMatch.....	381
RxFabrResolFailNoAddrAvps.....	381
RxFabrResolFailNoValidAddr.....	382
RxFabrSrvNotiDpComAgentErrors.....	382
RxFabrTransactionsRejected.....	382
RxFabrUnkApplId.....	383
TxFabrDbConFail.....	383
TxFabrFwdFail.....	384
Full Address Based Resolution (FABR) Application Performance measurements.....	384
FabrAverageQueriesPerBundle.....	386
RxDpResponseTimeAvg.....	386
RxFabrAvgMsgSize.....	386

RxFabrBundledResponseEvents.....	387
RxFabrDpResponseMsgQueueAvg.....	387
RxFabrDpResponseMsgQueuePeak.....	387
RxFabrMsgs.....	388
RxFabrResolAll.....	388
RxFabrResolAllMp.....	389
RxFabrResolImpi.....	389
RxFabrResolImpu.....	389
RxFabrResolImsi.....	390
RxFabrResolMsisdn.....	390
RxFabrResolRateAvg.....	390
RxFabrResolRatePeak.....	391
RxFabrSrvNotiDpCongest.....	391
TxFabrAbandonRequest.....	392
TxFabrBundledQueryEvents.....	392
TxFabrFwdDefaultDest.....	392
TxFabrFwdNochange.....	393
TxFabrFwdSuccess.....	393
TxFabrMsgAttempt.....	393
GLA Exception measurements.....	394
RxGlaDecodeFailures.....	394
RxGlaDatabaseFailures.....	395
RxGlaDatabaseTimeouts.....	395
GLA Performance measurements.....	396
TxGlaSuccessMsgs.....	396
RxGlaResponseMsgQueuePeak.....	397
RxGlaResponseMsgQueueAvg.....	397
TxGlaSuccessMsgRatePeak.....	397
TxGlaSuccessMsgRateAvg.....	398
RxGlaFailureMsgs.....	398
IDIH measurements.....	398
EvIdihNumTtrsSent.....	399
EvIdihNumTtrsDeliveryFailed.....	399
TmIdihTraceSuspendedTime.....	400
TmIdihTraceThrottlingTime.....	400
EvIdihThrottlingTtrsDiscarded.....	400
EvInvalidIdihTraceAvp.....	401
EvNetworkTraceStarted.....	401
IP Front End (IPFE) Exception measurements.....	402
PcapDroppedPackets.....	402
ThrottledPackets.....	403

TsaBadDestPortSctp.....	403
TsaBadDestPortTcp.....	403
TsaUnexpctedSctp.....	404
TsaUnexpctedTcp.....	404
TxReject.....	404
TxRejectSctp.....	405
IP Front End (IPFE) Performance measurements.....	405
AsNewAssociations.....	406
AsNewAssociationsSctp.....	406
IpfeNewAssociations.....	407
IpfeNewAssociationsSctp.....	407
RxIpfeBytes.....	408
RxIpfeBytesSctp.....	408
RxIpfePackets.....	408
RxTsaBytes.....	409
RxTsaBytesSctp.....	409
RxTsaPackets.....	409
RxTsaPacketsSctp.....	410
TsaNewAssociations.....	410
TsaNewAssociationsSctp.....	410
TxAsBytes.....	411
TxAsBytesSctp.....	411
TxAsPackets.....	411
TxAsPacketsSctp.....	412
Link Exception measurements.....	412
EvLnkActAckTO.....	413
RxLnkUnsollInactAck.....	413
RxLnkM3uaERROR.....	414
RxLnkInvalidM3ua.....	415
Link Performance measurements.....	415
TxLnkMSU.....	416
RxLnkMSU.....	416
TxLnkMSUOctets.....	417
RxLnkMSUOctets.....	417
Link Set Performance measurements.....	418
TxLnkSetMSU.....	418
RxLnkSetMSU.....	418
TxLnkSetMSUOctets.....	419
RxLnkSetMSUOctets.....	419
Link Set Usage measurements.....	420
TmM3RLLinksetUnavail.....	420

Link Usage measurements.....	421
TmLnkMOOS.....	421
TmLnkOOS.....	422
TmLnkAvailable.....	423
EvLnkManClose.....	423
MD-IWF Exception Measurements.....	424
TxMdIwfSs7TransmitFailure.....	425
RxMdIwfOrphanMapResponse.....	426
EvMdIwfMapResponseTimeout.....	426
RxMdIwfDiamNon2xxxAnswer.....	427
RxMdIwfOrphanDiamAnswer.....	427
EvMdIwfDiamAnswerTimeout.....	428
RxMdIwfDiamAnswerUnexpectedDaMp.....	428
TxMdIwfFailComAgentEnqueue.....	428
RxMdIwfComAgentError.....	429
RxMdIwfDiamPduPoolEmpty.....	429
EvMdIwfInterwrkFail.....	430
EvMdIwfInterwrkFailAddrTrans.....	430
EvMdIwfInterwrkFailMsgTrans.....	431
TxMdIwfDiamEdlEncodeFailure.....	431
EvMdIwfInterwrkFailCongest.....	432
EvMdIwfInterwrkFailFarEndResponse.....	432
EvMdIwfInterwrkFailDsrInitiated.....	432
EvMdIwfInterwrkFailSysError.....	433
EvMdIwfMessageFailResExh.....	433
EvMdIwfTransRejectByDiamExtNode.....	434
MD-IWF Performance measurements.....	434
RxMdIwfSS7Msg.....	437
TxMdIwfSS7Msg.....	437
RxMdIwfMapRequestMsg.....	438
TxMdIwfMapRequestMsg.....	438
RxMdIwfMapResponseMsg.....	438
TxMdIwfMapResponseMsg.....	439
RxMdIwfDiamMsg.....	439
TxMdIwfDiamMsg.....	439
RxMdIwfDiamRequestMsg.....	440
RxMdIwfDiamAnswerMsg.....	440
TxMdIwfDiamRequestMsg.....	441
TxMdIwfDiamAnswerMsg.....	441
EvMdIwfInterwrkAttempt.....	441
EvMdIwfInterwrkSuccess.....	442

RxMdIwfIngressMsgCount.....	442
RxMdIwfIngressMsgRateAvg.....	443
RxMdIwfIngressMsgRatePeak.....	443
RxMap2DiamTransMsgCount.....	444
RxMap2DiamTransMsgRateAvg.....	444
RxMap2DiamTransMsgRatePeak.....	445
RxDiam2MapTransMsgCount.....	445
RxDiam2MapTransMsgRateAvg.....	446
RxDiam2MapTransMsgRatePeak.....	446
RxMdIwfDiamTransMsgQueuePeak.....	446
RxMdIwfDiamTransMsgQueueAvg.....	447
RxMdIwfMapTransMsgQueuePeak.....	447
RxMdIwfMapTransMsgQueueAvg.....	448
RxMdIwfDampInterfaceMsgQueuePeak.....	448
RxMdIwfDampInterfaceMsgQueueAvg.....	448
EvMdIwfDiam2MapPtrUtilPeak.....	449
EvMdIwfDiam2MapPtrUtilAvg.....	449
EvMdIwfMap2DiamPtrUtilPeak.....	449
EvMdIwfMap2DiamPtrUtilAvg.....	450
TmMdIwfMap2DiamPtrHoldTimeAvg.....	450
TmMdIwfDiam2MapPtrHoldTimeAvg.....	451
RxMdIwfMapTcBegin.....	451
EvMdIwfTransSuccessByDiamExtNode.....	451
MD-IWF SS7 Performance measurements.....	452
RxMdIwfMapRequestMsgByOpcode.....	452
RxMdIwfMapResponseMsgByOpcode.....	453
TxMdIwfMapRequestMsgByOpcode.....	453
TxMdIwfMapResponseMsgByOpcode.....	453
MD-IWF Diam Performance Measurements.....	454
RxMdIwfDiamRequestMsgByCommandCode.....	454
RxMdIwfDiamAnswerMsgByCommandCode.....	454
TxMdIwfDiamRequestMsgByCommandCode.....	455
TxMdIwfDiamAnswerMsgByCommandCode.....	455
Message Copy measurements.....	456
DASCopyAnswerRx.....	457
DASCopyDiscarded.....	457
DASCopyFailureMCCSNotProvisioned.....	458
DASCopyFailureMPCong.....	458
DASCopyFailurePeerApplIdUnsup.....	459
DASCopyFailureSizeExceeded.....	459
DASCopyFailureRLNotProv.....	460

DASCopyRetransmits.....	460
DASCopyRetransmitsExceeded.....	461
DASCopyTx.....	461
DASCopyValidAnswer.....	462
TxMsgCopyQueueAve.....	462
TxMsgCopyQueueFullDiscard.....	463
TxMsgCopyQueuePeak.....	463
Message Priority measurements.....	464
RxMsgPri0ApplRule.....	464
RxMsgPri0PeerRule.....	465
RxMsgPri1ApplRule.....	465
RxMsgPri1PeerRule.....	466
RxMsgPri2ApplRule.....	466
RxMsgPri2PeerRule.....	466
Message Processor (MP) Performance measurements.....	467
EvLongTimeoutPtrPoolAvg.....	468
EvLongTimeoutPtrPoolPeak.....	469
EvMpCongestionLevel1Entered.....	470
EvMpCongestionLevel2Entered.....	470
EvMpCongestionLevel3Entered.....	471
EvPtrListAvg.....	472
EvPtrListPeak.....	472
MpEvRadiusRoutedMsgs.....	473
RxAnswerMsgQueueAvg.....	474
RxAnswerMsgQueuePeak.....	474
RxRequestMsgQueueAvg.....	475
RxRequestMsgQueuePeak.....	475
TmMpCongestionLevel1.....	476
TmMpCongestionLevel2.....	477
TmMpCongestionLevel3.....	478
TxRerouteQueueAvg.....	479
TxRerouteQueuePeak.....	479
OAM.ALARM measurements.....	480
OAM.SYSTEM measurements.....	480
OC-DRA Diameter Usage measurements.....	481
RxOcdraMsgRateAvg.....	482
RxOcdraMsgRatePeak.....	483
RxGyRoMsgsReceivedPerCmd.....	483
RxGyRoReqRelayedPerCmd.....	484
RxGyRoAnsRelayedPerCmd.....	484
RxGyRoAns2xxxFromPeerPerCmd.....	485

TmGyRoSessionDuration.....	485
TmGyRoSessionRefresh.....	486
OC-DRA Diameter Exception measurements.....	487
RxPcaTransactionsRejected.....	490
RxGyRoReqFailedToRelayPerCmd.....	491
RxGyRoAnsNon2xxxFromPeerPerCmd.....	492
RxGyRoAnsDiscardedDrlQueueFullPerCmd.....	492
TxGyRoAnsGenByDrlPerCmd.....	493
TxGyRoAnsGenByOcdraPerCmd.....	493
TxGyRoAnsGenPerErrCode.....	494
TxGyRoCcrInitAnsGenPerErrCode.....	495
TxGyRoCcrUpdateAnsGenPerErrCode.....	496
TxGyRoCcrTermAnsGenPerErrCode.....	496
TxGyRoCcrEventAnsGenPerErrCode.....	497
TxGyRoRarAnsGenPerErrCode.....	498
TxGyRoUnkCmdAnsGenPerErrCode.....	499
TxPcaAnsGenPerErrCode.....	500
RxPcaAnsRelayedUnsupportedAppId.....	500
RxOcdraReqNoCcRequestType.....	501
RxOcdraUnsupportedCcRequestType.....	501
RxOcdraStackEventDiscardedCaFailure.....	502
RxOcdraStackEventDiscardedUnsupported.....	503
RxGyRoCcrInitNoMsisdn.....	503
RxGyRoCcrInitNoDestHostMultOcsPoolMode.....	504
RxGyRoCcrEventNoDestHostMultOcsPoolMode.....	504
RxGyRoInSessionReqNoDestHost.....	505
RxOcdraSessionUnkToPeer.....	506
RxOcdraAnsweringOcsNotConfigured.....	506
OC-DRA Congestion Exception measurements.....	507
RxGyRoReqDiscardedCongestionPerCmd.....	507
P-DRA Diameter Usage measurements.....	508
RxPdraCcrInitMsgs.....	510
RxPdraCcrUpdateMsgs.....	510
RxPdraCcrTerminateMsgs.....	511
RxCcrInitNoImsiMsgs.....	511
RxPdraRarGxMsgs.....	511
RxPdraRarRxMsgs.....	512
RxPdraAarMsgs.....	512
RxPdraStrMsgs.....	512
PdraGxTopoHidingApplied.....	513
PdraRxTopoHidingApplied.....	513



RxPdraMsgRateAvg.....	514
RxPdraMsgRatePeak.....	514
RxPdra5002FromPcrf.....	514
RxPdra5002FromPolicyClient.....	515
TxPdraGxRarRelease.....	515
RxPdraGxpCcrInitMsgs.....	516
RxPdraGxpCcrUpdateMsgs.....	516
RxPdraGxpCcrTerminateMsgs.....	516
PdraGxpTopoHidingApplied.....	517
RxPdraFindingBindingSuccess.....	517
RxPdraRarGxpMsgs.....	518
RxBindCapApn2PcrfPool.....	518
RxBindCap2PcrfSubPool.....	518
RxBindCapPcrfPool2Prt.....	519
RxPdraAsrMsgs.....	519
TxPdraGxRarQuery.....	520
TmImsiBindingDuration.....	520
TmGxSessionDuration.....	521
TmGxSessionRefresh.....	522
TmGxxSessionDuration.....	522
TmGxxSessionRefresh.....	523
TmRxSessionDuration.....	524
TmRxSessionRefresh.....	524
TmGxPrimeSessionDuration.....	525
TmGxPrimeSessionRefresh.....	526
TmS9SessionDuration.....	526
TmS9SessionRefresh.....	527
P-DRA Diameter Exception measurements.....	528
RxBindCapPcrfPoolNotMapped.....	529
RxBindCapMissingApn.....	530
RxBindCapUnknownApn.....	530
RxBindDepUnknownApn.....	531
RxBindDepMissingApn.....	532
RxBindCapUnknownPcrf.....	532
RxPcaRARRouteLocalFailure.....	533
RxPcaTransactionsRejected.....	533
RxPdraRequestProtocolErr.....	534
RxStackEventDiscardedCaFailure.....	535
TxAaxMsgDiscardedDueToDrlQueueFull.....	535
TxAsxMsgDiscardedDueToDrlQueueFull.....	536
TxCcxMsgDiscardedDueToDrlQueueFull.....	536

TxGxpCcxMsgDiscardedDrlQueueFull.....	536
TxPdraAnswersGeneratedConfigErr.....	537
TxPdraAnswersGeneratedForDiameterErr.....	538
TxPdraAnswersGeneratedForPsbrErrResp.....	538
TxPdraErrAnsGeneratedCAFailure.....	539
TxRaxMsgDiscardedDueToDrlQueueFull.....	539
TxStxMsgDiscardedDueToDrlQueueFull.....	540
P-DRA Congestion Exception measurements.....	540
RxCcrMsgDiscardedDueToCongestion.....	541
RxRarMsgDiscardedDueToCongestion.....	541
RxAarMsgDiscardedDueToCongestion.....	541
RxStrMsgDiscardedDueToCongestion.....	542
RxGxpCcrMsgDiscardedDueToCongestion.....	542
RxAsrMsgDiscardedDueToCongestion.....	542
P-DRA Site Diameter Usage measurements.....	543
RxSuspectBindingRuleMatchIncrCount.....	543
RxSuspectBindingRuleMatchRmvImt.....	544
Peer Node Performance measurements.....	544
EvPeerAvpDeleted.....	545
RxPeerAnswers.....	545
RxPeerRequests.....	545
TxPeerAnswers.....	546
TxPeerRequests.....	546
Peer Routing Rules measurements.....	546
RxPrtSelected.....	547
RxRuleDuplicatePriority.....	547
RxRuleFwdFailActionSendAns.....	548
RxRuleFwdFailAll.....	549
RxRuleSelected.....	549
TxMsgPrtMarkedForCpy.....	550
RD-IWF Performance measurements.....	550
RxIwfReceivedAll.....	551
RxIwfReceivedDEA.....	551
RxIwfReceivedRadiusAccessReq.....	551
TxIwfConvertedDER.....	552
TxIwfGenRadiusAccessAccept.....	552
TxIwfGenRadiusAccessChallenge.....	553
TxIwfGenRadiusAccessReject.....	553
Route List measurements.....	553
RxRouteListFailure.....	554
RxRouteListSelected.....	555

RxRouteListUnavailable.....	555
TmRouteListOutage.....	555
Routing Usage measurements.....	556
RxRoutedImplicitRealm.....	557
RxRoutedIntraMPAttempt.....	557
RxRoutedPeerDirect.....	558
RxRoutedPeerRouteList.....	558
RxRoutedPrt.....	558
SBR Audit measurements.....	559
SbrAbortMigratedSessionsTargeted.....	561
SbrAbortMigratedOcSessionsDeleted.....	562
SbrAcceleratedMigrationSessionsTargeted.....	563
SbrImsiAuditDbErr.....	563
SbrMsisdnAuditDbErr.....	564
SbrIpv4AuditDbErr.....	564
SbrIpv6AuditDbErr.....	564
SbrSessionRecsAudited.....	565
SbrExpiredSessionsFound.....	565
SbrImsiRecsAudited.....	565
SbrStaleSessionRemoved.....	566
SbrIpv4RecsAudited.....	566
SbrIpv4RecsRemoved.....	567
SbrIpv6RecsAudited.....	567
SbrSessionAuditDbErr.....	567
SbrSessionRefAuditDbErr.....	568
SbrImsiAuditCaErr.....	568
SbrMsisdnAuditCaErr.....	568
SbrIpv4AuditCaErr.....	569
SbrIpv6AuditCaErr.....	569
SbrIpv6RecsRemoved.....	570
SbrMsisdnRecsAudited.....	570
SbrMsisdnRecsRemoved.....	571
SbrImsiRecsRemoved.....	571
SbrImsiSrRemovedByAudit.....	571
SbrMsisdnSrRemovedByAudit.....	572
SbrOcSessionsAudited.....	573
SbrOcSessionsRemovedByAudit.....	573
SbrAcceleratedMigrationSessionsTargeted.....	573
TxSbrAuditSEReqSent.....	574
TxSbrAuditSEReqSentRateAvg.....	575
TxSbrAuditSEReqSentRatePeak.....	575

SBR Binding Performance measurements.....	576
MaxSessPerApnExceeded.....	577
SbrNewBindingsCreated.....	578
SbrUpdatedBindings.....	578
SbrBindTermByAscSess.....	579
SbrAltKeyCreated.....	579
SbrAltKeyDel.....	579
SbrMaxBindingAgeAtTerm.....	580
SbrAvgBindingAgeAtTerm.....	580
SbrAvgBindingDbRead.....	580
SbrMaxBindingDbRead.....	581
SbrAvgBindingDbWrite.....	581
SbrMaxBindingDbWrite.....	582
SbrLockCollisions.....	582
TmSbrProcessingTime.....	582
SbrEarlySlaveBindingsCreated.....	583
SbrFinalBindingsFollowed.....	583
SbrSlavePollingContinue.....	584
SbrSlavePollingRouteToPcrf.....	585
SbrPolicyBindingRecsAvg.....	585
SbrPolicyBindingRecsPeak.....	586
EvSuspectBindingEventIgnored.....	586
EvSuspectBindingEventCountReset.....	586
EvSuspectBindingRemoved.....	587
SBR Binding Exception measurements.....	587
InitReqRejectedTreatmentConfigToRoute.....	588
MaxSessionPerImsiExceeded.....	589
MaxSessPerApnExceededSisInvocationFail.....	590
SbrCreateBindDbErr.....	590
SbrUpdateBindDbErr.....	591
SbrRemoveBindDbErr.....	591
SbrCreateAltKeyDbErr.....	591
SbrRemoveAltKeyDbErr.....	592
SbrFindBindDbErr.....	592
SbrEarlyTooLongSrRemoved.....	593
SbrSlavePollingFail.....	593
SbrSuspectSrRemoved.....	594
SBR Session Performance measurements.....	595
SbrSessionsCreated.....	596
SbrSessionsRefresh.....	596
SbrSessionsDeleted.....	597

SbrAvgSessionAgeTermPerAPN.....	597
SbrMaxSessionAgeTermPerAPN.....	598
SbrAvgSessionDbRead.....	598
SbrMaxSessionDbRead.....	598
SbrAvgSessionDbWrite.....	599
SbrMaxSessionDbWrite.....	599
SbrPendingRarLockCollisions.....	599
SbrPolicySessionRecsAvg.....	600
SbrPolicySessionRecsPeak.....	600
SbrOcSessionsCreated.....	601
SbrOcSessionsRefreshed.....	601
SbrOcSessionsRemoved.....	601
SbrAvgOcSessionDbReads.....	602
SbrMaxOcSessionDbReads.....	602
SbrAvgOcSessionDbWrites.....	602
SbrMaxOcSessionDbWrites.....	603
SbrAvgOcSessionAgeTermPerApn.....	603
SbrMaxOcSessionAgeTermPerApn.....	604
SbrOcSessionRecsAvg.....	604
SbrOcSessionRecsPeak.....	604
RxInvokeSisPerRarType.....	605
TxInvokeSisResultPerResultCode.....	605
SBR Session Exception measurements.....	606
SbrCreateSessDbErr.....	607
SbrRefreshSessDbErr.....	607
SbrRemSessDbErr.....	608
SbrFindSessDbErr.....	608
SbrRemSessRarAttempts.....	608
SbrCreateOcSessionDbErr.....	609
SbrFindOcSessionDbErr.....	609
SbrOcSessionNotFound.....	610
SbrRefreshOcSessionDbErr.....	610
SbrRemoveOcSessionDbErr.....	610
TxPendingRarDeletedExceedMax.....	611
Server Exception measurements.....	611
EvError.....	611
EvVital.....	612
Server M3UA Exception measurements.....	613
TxM3uaERROR.....	613
RxM3uaERROR.....	614
M3UAStackQueueFull.....	614

SCTPAggrQueueFull.....	615
ANSIDiscardsNoPDUBuffer.....	615
ITUDiscardsNoPDUBuffer.....	616
Server M3UA Performance measurements.....	616
TxNonDataMsg.....	617
RxNonDataMsg.....	618
TxNonDataOctets.....	618
RxNonDataOctets.....	619
M3UASharedQueuePeak.....	620
M3UASharedQueueAvg.....	620
SCTPAggrQueuePeak.....	621
SCTPAggrQueueAvg.....	622
Server M3UA Usage measurements.....	622
TxASPSM.....	623
RxASPSM.....	623
TxASPTM.....	624
RxASPTM.....	624
TxDAUD.....	625
RxSSNM.....	625
RxM3uaNOTIFY.....	626
Server MTP3 Exception measurements.....	626
TxM3RLDestUnknown.....	627
TxM3RLDestUnavail.....	628
TxM3RLDestCong.....	628
TxM3RLBufOverflow.....	628
RxM3RLInvalidDPC.....	629
RxM3RLInvalidSI.....	629
RxM3RLInvalidNI.....	630
RxM3RLBufOverflow.....	630
M3RLStackQueueFull.....	631
M3RLNetMgtQueueFull.....	631
Server MTP3 Performance measurements.....	632
TxM3RLDataMsgs.....	632
RxM3RLDataMsgs.....	633
M3RLStackQueuePeak.....	633
M3RLStackQueueAvg.....	634
M3RLNetMgtQueuePeak.....	634
M3RLNetMgtQueueAvg.....	635
Server Resource Usage measurements.....	635
SS7ProcessPeak.....	636
SS7ProcessAvg.....	636

SS7RxMsgRatePeak.....	637
SS7RxMsgRateAvg.....	638
ItuiPDUUtilPeak.....	638
ITUPDUUtilAvg.....	639
ANSIPDUUtilPeak.....	639
AnsiPDUUtilAvg.....	640
Server SCCP Exception measurements.....	641
EvError.....	643
EvVital.....	643
RxMaxTpsExceeded.....	644
RxMPCongestion.....	644
RxSCCPInvalidDPC.....	645
RxSCCPInvalidSSN.....	645
RxSCCPInvalidMsg.....	646
RxSCCPInvalidHop.....	646
RxSCCPInvalidClass.....	647
RxSCCPInvalidGTI.....	647
RxSCCPReassFAIL.....	647
RxSCCPReassInternalFail.....	648
RxSCCPReassOOSFail.....	648
RxSCCPReassTExp.....	649
RxSCCPSegmentOOS.....	649
RxSCCPsgmntsPartReassFAIL.....	650
RxSCCPUnavailSSN.....	650
RxSCCPUnknownSSN.....	651
RxSCCPXudtInvSgmt.....	651
SCCPGTTFailure.....	651
SCCPStackQueueFull.....	652
SCMGErrors.....	652
TxSCCPCongestion.....	653
TxSCCPInvUserMsgs.....	653
TxSCCPInvalidDPC.....	653
TxSCCPInvalidSSN.....	654
TxSCCPSegmentFAIL.....	654
TxSCCPUnavailDPC.....	655
TxSCCPUnavailSSN.....	655
TxSCCPUnknownDPC.....	656
TxSCCPUnknownSSN.....	656
Server SCCP Performance measurements.....	657
TxSCCPMsgs.....	658
RxSCCPMsgs.....	658

TxSCCPUserMsgs.....	659
TxSCMGMsgs.....	659
TxMsgRatePeak.....	659
TxMsgRateAvg.....	660
RxSCCPUserMsgs.....	660
RxSCCPUserNoticeMsgs.....	661
RxSCMGMsgs.....	661
SCCPStackQueuePeak.....	662
SCCPStackQueueAvg.....	662
TxSCCPLargeMsgs.....	663
TxSCCPSegmentsPerMsg.....	663
TxSCCPSegmentSUCC.....	664
RxSCCPSgmtXudtMsgs.....	664
RxSCCPReassSUCC.....	664
RxSCCPSgmtReassPerMsg.....	665
RxSCCPRtGtFrwdAppl.....	665
RxSCCPRtGtXudtSgmt.....	666
RxSCCPRtSsnXudtSgmt.....	666
RxSCCPSegmentSrcMsg.....	666
RxSCCPSgmntsReassSUCC.....	667
Server TCAP Exception measurements.....	667
TCAPDialogueTimeout.....	668
TCAPAbrtPeer.....	669
TCAPAbrtTcu.....	669
TCAPAbrtPeerErr.....	670
TCAPAbrtTcuErr.....	670
TCAPDialogueTblFull.....	671
TCAPStackQueueFull.....	671
TCAPOpCancelTcu.....	672
TCAPOpTimeout.....	672
TCAPRetErrPeer.....	673
TCAPRetErrTcu.....	673
TCAPRejPeer.....	674
TCAPRejTcu.....	674
TCAPRejPeerErr.....	674
TCAPRejTcuErr.....	675
TCAPComponentTblFull.....	676
Ss7DeserializationFail.....	676
Server TCAP Performance measurements.....	677
RxTCAPDialogues.....	677
TxTCAPDialogues.....	678



TxTCAPOperations.....	678
TCAPStackQueueAvg.....	678
TCAPStackQueuePeak.....	679
TCAPDialogueTblAvg.....	679
TCAPDialogueTblPeak.....	680
TCAPComponentTblAvg.....	680
TCAPComponentTblPeak.....	681
SS7 Exception Measurements.....	681
Ss7TxFailedCA.....	681
Ss7TxMpUnkDiscard.....	682
SS7 Performance Measurements.....	682
Ss7TxSuccCA.....	683
Transport Exception measurements.....	683
RxTrFarEndClose.....	684
EvTrManClose.....	685
EvTrNoRespClose.....	685
EvTrCnxFail.....	686
TxTrSendFail.....	687
RxTrRecvFailed.....	687
EvTrSockInitFail.....	688
TmSingleTransQueueFull.....	688
EvSctpAdjPToDwn.....	689
EvSctpTransRej.....	690
Transport Usage measurements.....	691
EvTrCnxSuccess.....	691
TmTrEnaNotUp.....	692
RxTmSctpBufAvg.....	693
RxTmSctpBufPeak.....	693
Transport Performance measurements.....	694
TxTrOctets.....	695
RxTrOctets.....	695
TmSingleTransQueuePeak.....	696
TmSingleTransQueueAvg.....	697
SctpTransPeerCWNDPeak.....	697
SctpTransPeerCWNDAvg.....	698
SctpTransPeerSRTTPeak.....	698
SctpTransPeerSRTTAvg.....	698
SctpTransUnAckedDataPeak.....	699
SctpTransUnAckedDataAvg.....	699
SctpTransRTOPeak.....	700
SctpTransRTOAvg.....	700

Topology Hiding Performance measurements.....	701
TxPathTopology.....	702
RxPathTopology.....	703
EvHssTopology.....	703
EvMmeTopology.....	703
EvMmeTopologyException.....	704
EvHssTopologyException.....	704
EvPcrfTopology.....	705
EvPcrfTopologyMp.....	705
EvPcrfTopologyExceptionMp.....	705
EvPcrfTopologyException.....	706
EvAfTopology.....	706
EvAfTopologyMp.....	707
EvAfTopologyExceptionMp.....	707
EvAfTopologyException.....	708
TxPathTopologyMp.....	708
RxPathTopologyMp.....	708
EvHssTopologyMp.....	709
EvMmeTopologyMp.....	709
EvMmeTopologyExceptionMp.....	710
EvHssTopologyExceptionMp.....	710
TTG Performance measurements.....	711
TtgMaxLossExceeded.....	711
TtgSelectedP0.....	712
TtgSelectedP1.....	712
TtgSelectedP2.....	713
TtgSelectedPrimaryTtg.....	714
TtgSelectedSecondaryTtg.....	714
TtgTmLossRateRange1.....	715
TtgTmLossRateRange2.....	715
TtgTmLossRateRange3.....	716
TtgTmLossRateRange4.....	717
TTP Performance measurements.....	718
TtpDivertedInP0G.....	720
TtpDivertedInP0Y.....	721
TtpDivertedInP1G.....	721
TtpDivertedInP1Y.....	721
TtpDivertedInP2G.....	722
TtpDivertedInP2Y.....	722
TtpDivertedOutP0G.....	723
TtpDivertedOutP0Y.....	723

TtpDivertedOutP1G.....	724
TtpDivertedOutP1Y.....	724
TtpDivertedOutP2G.....	725
TtpDivertedOutP2Y.....	725
TtpDoicException.....	726
TtpDropP0G.....	726
TtpDropP0Y.....	726
TtpDropP1G.....	727
TtpDropP1Y.....	727
TtpDropP2G.....	728
TtpDropP2Y.....	728
TtpHandledDoicOverrideFlag.....	729
TtpHandledP0G.....	729
TtpHandledP0Y.....	729
TtpHandledP1G.....	730
TtpHandledP1Y.....	730
TtpHandledP2G.....	731
TtpHandledP2Y.....	731
TtpHandledRateAvg.....	732
TtpHandledRatePeak.....	732
TtpSelected.....	732
TtpTmLossRateRange1.....	733
TtpTmLossRateRange2.....	734
TtpTmLossRateRange3.....	734
TtpTmLossRateRange4.....	735
TtpTmStaticThrottling.....	736
TtpUniqueOLRs.....	736

**Appendix A: Policy DRA Error Resolution Procedures.....737**

Error Code 500.....	738
Error Code 501.....	738
Error Code 502.....	739
Error Code 2xx/3xx.....	740
Error Code 510.....	741
Error Code 511.....	741
Error Code 512.....	742
Error Code 513.....	743
Error Code 503.....	743
Error Code 505.....	744
Error Code 507.....	745

Error Code 508.....	746
Error Code 520.....	746
Error Code 521.....	747
Error Code 504.....	747
Error Code 509.....	748
Error Code 305.....	749
Error Code 305.....	749
Error Code 522.....	750
Error Code 523.....	750
Error Code 525.....	751
Error Code 506.....	751
Error Code 530.....	752
Error Code 531.....	753
<b>Glossary.....</b>	<b>754</b>

# List of Figures

Figure 1: Oracle System Login.....56

Figure 2: Paginated table.....58

Figure 3: Scrollable table.....59

Figure 4: Form page.....59

Figure 5: Tabbed pages.....60

Figure 6: Tabbed pages.....60

Figure 7: Report output.....60

Figure 8: Sorting a Table by Column Header.....61

Figure 9: Clear Field Control X.....62

Figure 10: Optional Layout Element Toolbar.....62

Figure 11: Automatic Error Notification.....63

Figure 12: Examples of Filter Styles.....64

# List of Tables

Table 1: Admonishments.....	44
Table 2: User Interface elements.....	49
Table 3: Main Menu Options.....	50
Table 4: Main Menu icons.....	57
Table 5: Example Action buttons.....	61
Table 6: Submit buttons.....	62
Table 7: Filter Control Elements.....	64
Table 8: Data Export Elements.....	69
Table 9: Active Tasks Elements.....	72
Table 10: Active Tasks Report Elements.....	74
Table 11: Scheduled Tasks Elements.....	76
Table 12: Measurements Elements.....	82
Table 13: Schedule Measurement Data Export Elements.....	83
Table 14: Address Resolution Exception Measurement Report Fields.....	85
Table 15: Address Resolution Performance Measurement Report Fields.....	95
Table 16: Application Routing Rule Measurements.....	103
Table 17: Association Exception Measurement Report Fields.....	106
Table 18: Association Performance Measurement Report Fields.....	116
Table 19: Association Usage Measurement Report Fields.....	118
Table 20: Communication Agent Exception Measurement Report Fields.....	121
Table 21: Communication Agent Performance Measurement Report Fields.....	151
Table 22: CAPM Measurement Report Fields.....	170

Table 23: Connection Congestion Measurement Report Fields.....	175
Table 24: Connection Exception Measurement Report Fields.....	176
Table 25: Connection Performance Measurement Report Fields.....	177
Table 26: Connection Service Measurement Report Fields.....	195
Table 27: Connection Transport Measurement Report Fields.....	198
Table 28: DA-MP Exception Measurement Report Fields.....	203
Table 29: DA-MP Performance Measurement Report Fields.....	204
Table 30: DA-MP Service Measurement Report Fields.....	261
Table 31: DSR Application Exception Measurement Report Fields.....	262
Table 32: DSR Application Performance Measurement Report Fields.....	270
Table 33: Diameter Egress Transaction Measurement Report Fields.....	292
Table 34: Diameter Exception Measurement Report Fields.....	300
Table 35: Diameter Ingress Transaction Exception Measurement Report Fields.....	311
Table 36: Diameter Ingress Transaction Performance Measurement Report Fields.....	322
Table 37: Diameter Performance Measurement Report Fields.....	327
Table 38: Diameter Rerouting Measurement Report Fields.....	340
Table 39: Diameter Egress Throttle Group Performance Measurement Report Fields.....	359
Table 40: Diameter Egress Throttle List Performance Measurement Report Fields.....	367
Table 41: FABR Application Exception Measurement Report Fields.....	375
Table 42: DSR Application Performance Measurement Report Fields.....	384
Table 43: GLA Exception Measurement Report Fields.....	394
Table 44: GLA Performance Measurement Report Fields.....	396
Table 45: IPFE Exception Measurement Report Fields.....	402
Table 46: IPFE Performance Measurement Report Fields.....	405
Table 47: Link Exception Measurement Report Fields.....	412

Table 48: Link Performance Measurement Report Fields.....	415
Table 49: Link Set Performance Measurement Report Fields.....	418
Table 50: Link Set Usage Measurement Report Fields.....	420
Table 51: Link Usage Measurement Report Fields.....	421
Table 52: MD-IWF Exception Measurements.....	424
Table 53: MD-IWF Performance Measurements.....	435
Table 54: MD-IWF SS7 Performance Measurements.....	452
Table 55: MD-IWF Diam Performance Measurements.....	454
Table 56: Message Copy Measurement Report Fields.....	456
Table 57: Message Priority Measurement Report Fields.....	464
Table 58: MP Performance Measurement Report Fields.....	467
Table 59: OAM Alarm measurements.....	480
Table 60: OAM System measurements.....	480
Table 61: OC-DRA Diameter Usage Measurement Report Fields.....	482
Table 62: OC-DRA Diameter Exception Measurement Report Fields.....	487
Table 63: OCP-DRA Congestion Exception Measurement Report Fields.....	507
Table 64: P-DRA Diameter Usage Measurement Report Fields.....	508
Table 65: P-DRA Diameter Exception Measurement Report Fields.....	528
Table 66: P-DRA Congestion Exception Measurement Report Fields.....	540
Table 67: P-DRA Diameter Usage Measurement Report Fields.....	543
Table 68: Peer Routing Rules Measurement Report Fields.....	544
Table 69: Peer Routing Rules Measurement Report Fields.....	547
Table 70: RD-IWF Measurement Report Fields.....	550
Table 71: Route List Measurement Report Fields.....	554
Table 72: Routing Usage Measurement Report Fields.....	556



Table 73: SBR Audit Measurement Report Fields.....	559
Table 74: SBR Binding Performance Measurement Report Fields.....	576
Table 75: SBR Binding Exception Measurement Report Fields.....	588
Table 76: SBR Session Performance Measurement Report Fields.....	595
Table 77: SBR Session Exception Measurement Report Fields.....	606
Table 78: Server M3UA Exception Measurement Report Fields.....	613
Table 79: Server M3UA Performance Measurement Report Fields.....	616
Table 80: Server M3UA Usage Measurement Report Fields.....	622
Table 81: Server MTP3 Exception Measurement Report Fields.....	626
Table 82: Server MTP3 Performance Measurement Report Fields.....	632
Table 83: Server Resource Usage Measurement Report Fields.....	635
Table 84: Server SCCP Exception Measurement Report Fields.....	641
Table 85: Server SCCP Performance Measurement Report Fields.....	657
Table 86: Server TCAP Exception Measurement Report Fields.....	667
Table 87: Server TCAP Performance Measurement Report Fields.....	677
Table 88: SS7 Exception Measurement Report Fields.....	681
Table 89: SS7 Performance Measurement Report Fields.....	682
Table 90: TTG Performance Measurement Report Fields.....	711
Table 91: TTP Performance Measurement Report Fields.....	718

# Chapter 1

## Introduction

---

### Topics:

- [Overview.....43](#)
- [Scope and Audience.....43](#)
- [Manual Organization.....43](#)
- [Documentation Admonishments.....43](#)
- [Related Publications.....44](#)
- [Locate Product Documentation on the Oracle Help Center Site.....44](#)
- [Customer Training.....45](#)
- [My Oracle Support \(MOS\).....45](#)
- [Emergency Response.....45](#)

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.

## 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 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	Danger: (This icon and text indicate the possibility of <i>personal injury</i> .)
 WARNING	Warning: (This icon and text indicate the possibility of <i>equipment damage</i> .)
 CAUTION	Caution: (This icon and text indicate the possibility of <i>service interruption</i> .)
 TOPPLE	Topple: (This icon and text indicate the possibility of <i>personal injury and equipment damage</i> .)

## Related Publications

For information about additional publications that are related to this document, refer to the *Related Publications Reference* document, which is published as a separate document on the Oracle Help Center (OHC) site. See [Locate Product Documentation on the Oracle Help Center Site](#) for more information.

## 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](http://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.....48](#)
- [Missing Main Menu options.....54](#)
- [Common Graphical User Interface Widgets.....55](#)

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 & Events
- Security Log
- Status & Manage
- Measurements
- Help
- Legal Notices
- Logout

Applications, such as DSR, build upon this framework to present features and functions. For example, the DSR Network OAM GUI may present the following Main Menu options in addition to the common options:

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

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

Note that the DSR System OAM Main Menu options differ from the Network OAM options. Some Main Menu options are configurable from the DSR 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	<p>The left side of the banner just above the Main Menu provides the following session information:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• The HA state of the machine to which the user is connected.</li> <li>• The role of the machine to which the user is connected.</li> </ul> <p>The right side of the banner:</p> <ul style="list-style-type: none"> <li>• Shows the user name of the currently logged-in user.</li> <li>• Provides a link to log out of the GUI.</li> </ul>
Main Menu	Left side of screen, under banners	<p>A tree-structured menu of all operations that can be performed through the user interface. The plus character (+) indicates a menu item contains subfolders.</p> <ul style="list-style-type: none"> <li>• To display submenu items, click the plus character, the folder, or anywhere on the same line.</li> <li>• To select a menu item that does not have submenu items, click on the menu item text or its associated symbol.</li> </ul>
Work Area	Right side of panel under status	<p>Consists of three sections: Page Title Area, Page Control Area (optional), and Page Area.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 <a href="#">Optional Layout Element Toolbar</a>.</li> <li>• 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</li> </ul>

Element	Location	Function
		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 <a href="#">Customizing the Login Message</a> .

## 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	<p>The Administration menu allows the user to:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Set up and manage user accounts</li> <li>• Configure group permissions</li> <li>• View session information</li> <li>• Manage sign-on certificates</li> <li>• Authorize IP addresses to access the user interface</li> <li>• Configure SFTP user information</li> <li>• View the software versions report</li> <li>• Upgrade management including backup and reporting</li> <li>• Authenticate LDAP servers</li> <li>• Configure SNMP trapping services</li> <li>• Configure an export server</li> <li>• Configure DNS elements</li> </ul>
Configuration	<p>On the NOAM, allows the user to configure:</p> <ul style="list-style-type: none"> <li>• Network Elements</li> <li>• Network Devices</li> <li>• Network Routes</li> </ul>

Menu Item	Function
	<ul style="list-style-type: none"> <li>• Services</li> <li>• Servers</li> <li>• Server Groups</li> <li>• Resource Domains</li> <li>• Places</li> <li>• Place Associations</li> <li>• Interface and Port DSCP</li> </ul>
Alarms and Events	<p>Allows the user to view:</p> <ul style="list-style-type: none"> <li>• Active alarms and events</li> <li>• Alarm and event history</li> <li>• Trap log</li> </ul>
Security Log	<p>Allows the user to view, export, and generate reports from security log history.</p>
Status & Manage	<p>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.</p>
Measurements	<p>Allows the user to view and export measurement data.</p>
Transport Manager (optional)	<p>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.</p>
Communication Agent (optional)	<p>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.</p>
SS7/Sigtran (optional)	<p>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.</p>
Diameter Common (optional)	<p>Allows the user to view or configure:</p> <ul style="list-style-type: none"> <li>• Dashboard, configure on the NOAM; view on both OAMs</li> <li>• Network Identifiers on the SOAM - MCC Ranges</li> <li>• Network Identifiers on the NOAM - MCCMNC and MCCMNC Mapping</li> <li>• MPs (on the SOAM) - editable Profile parameters and Profile Assignments</li> </ul> <p>The DSR Bulk Import and Export functions are available on both OAMs for the data configured on that OAM.</p>
Diameter (optional)	<p>Allows the user to configure, modify, and monitor Diameter routing:</p> <ul style="list-style-type: none"> <li>• On the NOAMP, Diameter Topology Hiding and Egress Throttle List configuration</li> </ul>

Menu Item	Function
	<ul style="list-style-type: none"> <li>• On the SOAM, Diameter Configuration, Maintenance, Reports, Troubleshooting with IDIH, AVP Dictionary, and Diameter Mediation configuration</li> </ul>
RBAR (Range-Based Address Resolution) (optional)	Allows the user to configure the following Range-Based Address Resolution (RBAR) settings: <ul style="list-style-type: none"> <li>• Applications</li> <li>• Exceptions</li> <li>• Destinations</li> <li>• Address Tables</li> <li>• Addresses</li> <li>• Address Resolutions</li> <li>• System Options</li> </ul> This is accessible from the SOAM only.
FABR (Full Address Based Resolution) (optional)	Allows the user to configure the following Full Address Based Resolution (FABR) settings: <ul style="list-style-type: none"> <li>• Applications</li> <li>• Exceptions</li> <li>• Default Destinations</li> <li>• Address Resolutions</li> <li>• System Options</li> </ul> This is accessible from the SOAM only.
Policy and Charging (optional)	On the NOAMP, allows the user to perform configuration tasks, edit options, and view elements for: <ul style="list-style-type: none"> <li>• General Options</li> <li>• Access Point Names</li> <li>• Policy DRA               <ul style="list-style-type: none"> <li>• PCRF Pools</li> <li>• PCRF Sub-Pool Selection Rules</li> <li>• Network-Wide Options</li> </ul> </li> <li>• Online Charging DRA               <ul style="list-style-type: none"> <li>• OCS Session State</li> <li>• Realms</li> <li>• Network-Wide Options</li> </ul> </li> <li>• Alarm Settings</li> <li>• Congestion Options</li> </ul> Additionally on the NOAMP, users are allowed to perform maintenance tasks, edit options, and view elements for: <ul style="list-style-type: none"> <li>• Maintenance               <ul style="list-style-type: none"> <li>• SBR Database Status</li> </ul> </li> </ul>

Menu Item	Function
	<ul style="list-style-type: none"> <li>• SBR Status</li> <li>• SBR Database Reconfiguration Status</li> <li>• Policy Database Query</li> </ul> <p>On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for:</p> <ul style="list-style-type: none"> <li>• General Options</li> <li>• Access Point Names</li> <li>• Policy DRA                             <ul style="list-style-type: none"> <li>• PCRFs</li> <li>• Binding Key Priority</li> <li>• PCRF Pools</li> <li>• PCRF Pool to PRT Mapping</li> <li>• PCRF Sub-Pool Selection Rules</li> <li>• Policy Clients</li> <li>• Suspect Binding Removal Rules</li> <li>• Site Options</li> </ul> </li> <li>• Online Charging DRA                             <ul style="list-style-type: none"> <li>• OCSs</li> <li>• CTFs</li> <li>• OCS Session State</li> <li>• Realms</li> </ul> </li> <li>• Error Codes</li> <li>• Alarm Settings</li> <li>• Congestion Options</li> </ul>
Gateway Location Application (optional)	<p>On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for:</p> <ul style="list-style-type: none"> <li>• Exceptions</li> <li>• Options</li> </ul> <p>GLA can deploy with Policy DRA (in the same DA-MP or a separate DA-MP).</p>
IPFE (optional)	<p>Allows the user to configure IP Front End (IPFE) options and IP List TSAs. This is accessible from the SOAM server only.</p>
MAP-Diameter Interworking (optional)	<p>On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for the DM-IWF DSR Application:</p> <ul style="list-style-type: none"> <li>• DM-IWF Options</li> <li>• Diameter Exception</li> </ul> <p>On the NOAMP, allows the user to perform configuration tasks, edit options, and view elements for the MD-IWF SS7 Application:</p>

Menu Item	Function
	<ul style="list-style-type: none"> <li>• MD-IWF Options</li> <li>• Diameter Realm</li> <li>• Diameter Identity GTA</li> <li>• GTA Range to PC</li> <li>• MAP Exception</li> <li>• CCNDC Mapping</li> </ul>
RADIUS (optional)	<p>Allows the user to perform configuration tasks, edit system options, and view elements for:</p> <ul style="list-style-type: none"> <li>• Network Options</li> <li>• Message Authenticator Configuration Sets</li> <li>• Shared Secret Configuration Sets</li> <li>• Ingress Status Server Configuration Sets</li> <li>• Message Conversion Configuration Sets</li> <li>• NAS Node</li> </ul>
SBR (optional)	<p>Allows the user to perform configuration tasks, edit system options, and view elements for:</p> <ul style="list-style-type: none"> <li>• SBR Databases</li> <li>• SBR Database Resizing Plans</li> <li>• SBR Data Migration Plans</li> </ul> <p>Additionally, on the NOAMP, users are allowed to perform maintenance tasks, edit options, and view elements for:</p> <ul style="list-style-type: none"> <li>• Maintenance <ul style="list-style-type: none"> <li>• SBR Database Status</li> <li>• SBR Status</li> <li>• SBR Database Reconfiguration Status</li> </ul> </li> </ul>
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.



## Oracle System Login

Wed Jul 8 14:20:00 2015 EDT

**Log In**

Enter your username and password to log in

Username:

Password:

Change password

Welcome to the Oracle System Login.

Unauthorized access is prohibited. This Oracle system requires the use of Microsoft Internet Explorer 8.0, 9.0, or 10.0 with support for JavaScript and cookies.

*Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.*

*Copyright © 2010, 2015, [Oracle](#) and/or its affiliates. All rights reserved.*

**Figure 1: Oracle System Login**

1. From the **Main Menu**, select **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 a DSR, some configuration is done at the NOAM server, while some is done at the SOAM server. Because of this, you will 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.
	Multiple Files	Contains operations in a File View page.
	File with Question Mark	Contains operations in a Query page.

Icon	Name	Description
	User	Contains operations related to users.
	Group	Contains operations related to groups.
	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](#).

Displaying Records 1-1 of 1 | [First](#) | [Prev](#) | [Next](#) | [Last](#)

Action		System ID	IP Address	Permission	Action	
<a href="#">Edit</a>	<a href="#">Delete</a>	lisa	10.25.62.4	READ_WRITE	<a href="#">Edit</a>	<a href="#">Delete</a>

Displaying Records 1-1 of 1 | [First](#) | [Prev](#) | [Next](#) | [Last](#)

**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 resolve a

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.

Username:  (5-16 characters)

Group:  ▼

Time Zone:  ▼

Maximum Concurrent Logins:  Maximum concurrent logins for a user (0=no limit).  
[Default = 1; Range = 0-50]

Session Inactivity Limit:  Time (in minutes) after which login sessions expire (0 = never).  
[Default = 120; Range = 0-120]

Comment:  (max 64 characters)

Temporary Password:  (8-16 characters)

Re-type Password:  (8-16 characters)

---

Figure 4: Form page

### Tabbed pages

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

Entire Network *		System.CPU_CoreUtilPct_Average		System.CPU_CoreUtilPct_Peak			
NOAMP	SOAM	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

Retrieve Add Update Delete

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

Field	Value	Description
Network Entity	<input type="text"/>	* Numeric identifier for the Network Entity 1-15 DIGITS

Retrieve

Figure 6: Tabbed pages

### Reports

Reports provide a formatted display of information. Reports are generated from data tables by clicking the **Report** button. 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**, select **Administration > General Options**.

The **General Options** page appears.

2. Locate **WelcomeMessage** 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.

Local Node Name	Realm	FQDN	SCTP Listen Port	TCP Listen Port	Connection Configuration Set	CEX Configuration Set	IP Addresses
-----------------	-------	------	------------------	-----------------	------------------------------	-----------------------	--------------

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.

Action button	Function
Delete	Deletes data from table.
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.

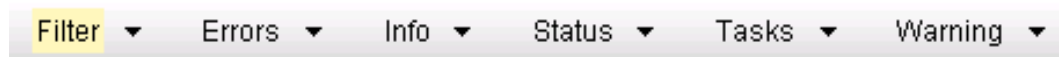
Click the X next to a pulldown list to clear the field.



**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**

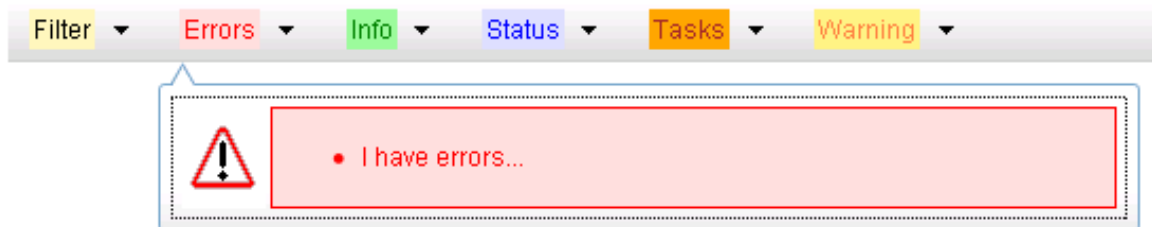
The toolbar displays different elements depending on which GUI page is selected. The elements of the toolbar that can appear include:

- 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 will 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 <b>Is Null</b> in the specified field.

**Note:** Not all filterable fields support all operators. Only the supported operators will be 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.  
The filter tool appears.
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.  
The filter tool appears.
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.  
The filter tool appears.
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.  
The selected operator appears in the field.
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**, select **Administration > General Options**.

The **General Options Administration** page appears.

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:

- [Help Organization.....68](#)
- [Measurements Warning.....68](#)
- [Displaying the file list.....68](#)
- [Opening a file.....68](#)
- [Data Export.....69](#)
- [Tasks.....71](#)
- [My Oracle Support \(MOS\).....77](#)

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

## Help Organization

Information in this document is organized into the following sections:

- [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.

## 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.

## Displaying 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**.  
The **Status & Manage Files** page appears.
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**.  
The **Status & Manage Files** page appears.
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.  
Your browser's **File Download** window appears.
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 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.

Element	Description	Data Input Notes
		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
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 or 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	Format: Button

Element	Description	Data Input Notes
	data export server currently defined on the page.	
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**.  
The Data Export page appears.
2. Enter a **Hostname**.  
See the 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. Enter the **Path to Rsync** on the Export server.
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. Click **Exchange SSH Key** to transfer the SSH keys to the Export server.  
A password dialog box appears.
13. Enter the password.  
The server will attempt 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 Tasks** 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**.

The **Active Tasks** page appears.

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**.  
A confirmation box appears.
5. Click **OK** to delete the selected task(s).  
The selected task(s) are deleted from the table.

### Deleting all completed tasks

Use this procedure to delete all completed tasks.

1. Select **Status & Manage > Tasks > Active Tasks**.  
The **Active Tasks** page appears.
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**.  
A confirmation box appears.
4. Click **OK** to delete all completed tasks.  
All tasks with the status of completed are deleted.

### Canceling a running or paused task

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

1. Select **Status & Manage > Tasks > Active Tasks**.  
The **Active Tasks** page appears.
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**.  
A confirmation box appears.
5. Click **OK** to cancel the selected task.  
The selected task is canceled.

### Pausing a task

Use this procedure to pause a task.

1. Select **Status & Manage > Tasks > Active Tasks**.  
The **Active Tasks** page appears.
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.

The selected task is paused. 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**.

The **Active Tasks** page appears.

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

Active Tasks Report Element	Description
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**.

The **Active Tasks** page appears.

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 will be included in the report.

4. Click **Report**.

The **Tasks Report** page appears.

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](#)

## Viewing scheduled tasks

Use this procedure to view the scheduled tasks.

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

The **Scheduled Tasks** page appears, and all scheduled tasks are displayed.

## 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**.  
The **Scheduled Tasks** page appears, and all scheduled tasks are displayed.
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**.  
The **Scheduled Tasks** page appears, and all scheduled tasks are displayed.
2. Select one or more tasks.
3. Click **Delete**.  
A confirmation box appears.
4. Click **OK** to delete the selected task(s).  
The selected task(s) are deleted from the table.

### Generating a scheduled task report

Use this procedure to generate a scheduled task report.

1. Select **Status & Manage > Tasks > Scheduled Tasks**.  
The **Scheduled Tasks** page appears, and all scheduled tasks are displayed.
2. Select one or more tasks.  
**Note:** If no tasks are selected, all tasks matching the current filter criteria will be included in the report.
3. Click **Report**.

The **Scheduled Tasks Report** page appears.

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

## 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.

## Measurements

---

**Topics:**

- *General measurements information.....81*
- *Address Resolution Exception measurements....85*
- *Address Resolution Performance measurements.....95*
- *Application Routing Rules measurements.....103*
- *Association Exception measurements.....106*
- *Association Performance measurements.....116*
- *Association Usage measurements.....118*
- *Communication Agent (ComAgent) Exception measurements.....121*
- *Communication Agent (ComAgent) Performance measurements.....151*
- *Computer Aided Policy Making (CAPM) measurements.....169*
- *Connection Congestion measurements.....175*
- *Connection Exception measurements.....176*
- *Connection Performance measurements.....177*
- *Connection Service measurements.....195*
- *Connection Transport measurements.....198*
- *DA-MP Exception measurements.....203*
- *DA-MP Performance measurements.....204*
- *DA-MP Service measurements.....261*
- *Diameter Signaling Router (DSR) Application Exception measurements.....262*
- *Diameter Signaling Router (DSR) Application Performance measurements.....269*
- *Diameter Egress Transaction measurements.....292*
- *Diameter Exception measurements.....299*
- *Diameter Ingress Transaction Exception measurements.....311*
- *Diameter Ingress Transaction Performance measurements.....322*

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

- *Diameter Performance measurements.....327*
- *Diameter Rerouting measurements.....340*
- *DM-IWF Exception measurements.....344*
- *DM-IWF Performance measurements.....350*
- *Egress Throttle Group Performance measurements.....359*
- *Egress Throttle List Performance measurements.....367*
- *Full Address Based Resolution (FABR) Application Exception measurements.....375*
- *Full Address Based Resolution (FABR) Application Performance measurements.....384*
- *GLA Exception measurements.....394*
- *GLA Performance measurements.....396*
- *IDIH measurements.....398*
- *IP Front End (IPFE) Exception measurements.....402*
- *IP Front End (IPFE) Performance measurements.....405*
- *Link Exception measurements.....412*
- *Link Performance measurements.....415*
- *Link Set Performance measurements.....418*
- *Link Set Usage measurements.....420*
- *Link Usage measurements.....421*
- *MD-IWF Exception Measurements.....424*
- *MD-IWF Performance measurements.....434*
- *MD-IWF SS7 Performance measurements.....452*
- *MD-IWF Diam Performance Measurements...454*
- *Message Copy measurements.....456*
- *Message Priority measurements.....464*
- *Message Processor (MP) Performance measurements.....467*
- *OAM.ALARM measurements.....480*
- *OAM.SYSTEM measurements.....480*
- *OC-DRA Diameter Usage measurements.....481*
- *OC-DRA Diameter Exception measurements..487*
- *OC-DRA Congestion Exception measurements.....507*
- *P-DRA Diameter Usage measurements.....508*
- *P-DRA Diameter Exception measurements.....528*
- *P-DRA Congestion Exception measurements..540*
- *P-DRA Site Diameter Usage measurements...543*
- *Peer Node Performance measurements.....544*
- *Peer Routing Rules measurements.....546*

- *RD-IWF Performance measurements.....550*
- *Route List measurements.....553*
- *Routing Usage measurements.....556*
- *SBR Audit measurements.....559*
- *SBR Binding Performance measurements.....576*
- *SBR Binding Exception measurements.....587*
- *SBR Session Performance measurements.....595*
- *SBR Session Exception measurements.....606*
- *Server Exception measurements.....611*
- *Server M3UA Exception measurements.....613*
- *Server M3UA Performance measurements.....616*
- *Server M3UA Usage measurements.....622*
- *Server MTP3 Exception measurements.....626*
- *Server MTP3 Performance measurements.....632*
- *Server Resource Usage measurements.....635*
- *Server SCCP Exception measurements.....641*
- *Server SCCP Performance measurements.....657*
- *Server TCAP Exception measurements.....667*
- *Server TCAP Performance measurements.....677*
- *SS7 Exception Measurements.....681*
- *SS7 Performance Measurements.....682*
- *Transport Exception measurements.....683*
- *Transport Usage measurements.....691*
- *Transport Performance measurements.....694*
- *Topology Hiding Performance measurements..701*
- *TTG Performance measurements.....711*
- *TTP Performance measurements.....718*



## 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 (NOAMP, 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.

**Note:** For details about specific measurements, refer to *Alarms, KPIs, and Measurements*.

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.  <b>Note:</b> 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  <b>Note:</b> 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: <ul style="list-style-type: none"> <li>• Like: A pattern-matching distinction for sub-measurement name, for example, 123* matches any sub-measurement that begins with 123.</li> <li>• 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.</li> </ul> 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.**

The **Measurements Report** page appears.

**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**.

The report is generated.

**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.  
The report data appears.

## 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

Element	Description	Data Input Notes
		Default: 12:00 AM
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 [Displaying 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:

- [Viewing scheduled tasks](#)
- [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
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

Measurements

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**

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages rejected due to a message decoding error.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxRbarResolFailAll**

<b>Measurement Group</b>	Address Resolution Exception
--------------------------	------------------------------

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

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received with an unknown Command Code.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)



<b>Description</b>	Number of routing attempt failures due to internal database inconsistency failure.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When RBAR receives a Request message and encounters a run-time database inconsistency.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	
	If this problem occurs, contact <a href="#">My Oracle Support (MOS)</a> .

### RxRbarResolFailImpiMatch

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received with a valid IMPI that did not match a provisioned address or address range.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	
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 <b>RBAR &gt; Configuration &gt; Address Resolutions</b> .

### RxRbarResolFailImpuMatch

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received with a valid IMPU that did not match a provisioned address or address range.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received with an IPv6-Prefix Address that did not match a provisioned address or address range
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received with a valid MSISDN that did not match a provisioned address or address range
<b>Collection Interval</b>	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, 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

<b>Peg Condition</b>	Each time the Routing Exception Abandon Request is invoked
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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
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
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

Measurement Tag	Description	Collection Interval
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

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Average size of Request message received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Average calculated for each Request message received as defined by measurement <a href="#">RxRbarMsgs</a> .
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxRbarMsgs

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



**Recovery**

No action required.

**RxRbarResolAll**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved to a Destination.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**RxRbarResolAllMp**

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

**Recovery**

No action required.

**RxRbarResolImpi**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)

<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type IMPI.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxRbarResolImpu

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type IMPU.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxRbarResolImsi

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type IMSI.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**RxRbarResolIpv4**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type IPv4 Address.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxRbarResolIpv6prefix**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type IPv6-Prefix Address.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxRbarResolMsisdn**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)

<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type MSISDN.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxRbarResolRateAvg

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average Addresses Successfully Resolved per second.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average per second is periodically calculated based on the total number of addresses successfully resolved as defined by measurement <a href="#">RxRbarResolAllMp</a> .
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxRbarResolRatePeak

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

No action required.

### **RxRbarResolSingleAddr**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with an Individual Address.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### **RxRbarResolUnsigned16**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type UNSIGNED16.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### **TxRbarFwdDefaultDest**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)

<b>Description</b>	Number of Request message forwarding attempts using a Default Destination.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the Routing Exception Forward route the message with a user-configurable Default Destination is invoked.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required

### TxRbarFwdNochange

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request message forwarding attempts without changing the message.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the Routing Exception Forward route the message unchanged is invoked.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TxRbarFwdSuccess

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages successfully forwarded (all reasons).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the application successfully enqueues a Request message on the DSR Relay Agent's Request Message Queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	If this value is less than measurement <i>TxRbarMsgAttempt</i> , then an internal resource error is occurring. Contact <i>My Oracle Support (MOS)</i> . if needed.

**TxRbarMsgAttempt**

<b>Measurement Group</b>	Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request message forwarding attempts (all reasons).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the application attempts to enqueue a Request message on the DSR Relay Agent's Request Message Queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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**

<b>Measurement Tag</b>	<b>Description</b>	<b>Collection Interval</b>
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

Measurement Tag	Description	Collection Interval
RxArtSelected	Number of times that an application routing rule from ART-X was selected for routing a Request message	5 min

### RxApplRuleSelected

<b>Measurement Group</b>	Application Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Routing Rule ID)
<b>Description</b>	Number of times that the application routing rule was selected for routing a Request message.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL selects an application routing rule for routing a message.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxApplRuleFwdFailAll

<b>Measurement Group</b>	Application Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Routing Rule ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL selects an application routing rule to route a Request message and one of the following conditions is met: <ul style="list-style-type: none"> <li>• The DSR Application's Operational Status is "Unavailable".</li> <li>• The DSR Application's Operational Status is not "Unavailable" but the attempt to enqueue the message to the DSR Application failed.</li> </ul>
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.



**RxApplRuleFwdFailUnavail**

<b>Measurement Group</b>	Application Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Routing Rule ID)
<b>Description</b>	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".
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL selects an application routing rule to route a Request message and the DSR Application's Operational Status is "Unavailable".
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxApplRuleDuplicatePriority**

<b>Measurement Group</b>	Peer Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Routing Rule ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	Use GUI screen: <b>Main Menu &gt; Diameter &gt; Configuration &gt; Application Routing Rules</b> 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**

<b>Measurement Group</b>	Application Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of times that an application routing rule from ART-X was selected for routing a Request message
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL selects an application routing rule from ART-X for routing a message
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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	30 min

Measurement Tag	Description	Collection Interval
	sending of any messages on an established transport or UDP socket.	
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
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 <b>Enabled</b> 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)

<b>Description</b>	Number of times the far end closed the SCTP connection
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time the far-end of the association closes the association by sending either SHUTDOWN or ABORT.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**EvAsnManClose**

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	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 <b>Disabled</b> .
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time a manual change is made to the association administrative state from <b>Enabled</b> to <b>Blocked</b> or from <b>Enabled</b> to <b>Disabled</b> , causing the association to transition out of ASP-UP protocol state.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvAsnNoRespClose

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvTrCnxFail

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an SCTP connect attempt fails.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxAsnSendFail**

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxAsnRecvFailed

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvTrSockInitFail

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The number of times the socket initialization failed. Socket initialization includes configuring the association according to the settings in the GUI under <b>SS7/Sigtran &gt; Configuration &gt; Associations &gt; Configuration Sets</b> .
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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. Contact [My Oracle Support \(MOS\)](#) for further assistance.

### RxAsnM3uaERROR

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an M3UA ERROR message is received that cannot be mapped to a specific link.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### EvAsnUpAckTO

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	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 <b>Enabled</b> administrative state).
<b>Collection Interval</b>	30 min



<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxAsnUnsolDownAck**

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an unsolicited ASP-DOWN-ACK is received on the association.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxAsnInvalidM3ua**

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	The number invalid M3UA messages received on this association. An invalid M3UA message is a message that violates the M3UA protocol.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TmSingleTransQueueFull**

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The number of egress messages that were discarded because the single Transport Writer Queue was full.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## EvSctpAdjPToDwn

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	Number of times configured IP Address of an Adjacent Node goes from Available to Unavailable.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## EvSctpTransRej

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, 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

<b>Measurement Group</b>	Association Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## SCTPAssocQueueAvg

<b>Measurement Group</b>	Association Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	The average SCTP Single Association Writer Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average of all SCTP Single Association Writer Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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, 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 <b>Blocked</b> administrative state but was not in ASP-DOWN state. When the association is <b>Blocked</b> , 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

Measurement Tag	Description	Collection Interval
RxTrOctets	The number of octets received on the SCTP/UDP Transport. It does not include SCTP, IP, or Ethernet headers.	30 min

### EvAsnCnxSuccess

<b>Measurement Group</b>	Association Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	The number of times the SCTP connection was successfully established on the association.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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).
<b>Measurement Scope</b>	NE, Server

#### Recovery

1. If the association is expected to have connected during the measurement reporting interval, no action is necessary. Otherwise, perform 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TmAsnBlkNotDown

<b>Measurement Group</b>	Association Usage
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (per association)
<b>Description</b>	The number of seconds during the reporting interval during which the association was in the <b>Blocked</b> administrative state but was not in ASP-DOWN state. When the association is <b>Blocked</b> , 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.
<b>Collection Interval</b>	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 the 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. 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
CADDataFIFOQueueFul	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
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
CAMx FIFOQueueFul	StackEvents discarded due to ComAgent Mx FIFO 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

Measurement Tag	Description	Collection Interval
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
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
CASStackQueueFul	StackEvents discarded due to ComAgent task queue full condition.	30 min

Measurement Tag	Description	Collection Interval
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
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

Measurement Tag	Description	Collection Interval
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 doesn't support stack or event library or event library version is incompatible)	30 min
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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CADSTxDscrdCong**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress stack events discarded because the congestion level of the connection exceeded the stack events' priority level.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CAHSRsrcErr**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	Number of times that ComAgent receives in a heartbeat stack event status concerning a known Resource but an unknown Sub-Resource.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server

**Recovery**

1. Use **Main Menu > Communication Agent > Maintenance** to determine configuration problems.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CAHSTxDscrdCongSR**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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 product'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. Contact [My Oracle Support \(MOS\)](#) for assistance.

## CAHSTxDscrdIntErrSR

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	Number of egress stack events destined to a known Sub-Resource that were discarded due to a ComAgent internal error.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## CAHSTxDscrdUnavailSR

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Stack event submitted to ComAgent by a local User Layer, and the stack event references an Unavailable Sub-Resource.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CAHSTxDscrdUnknownSR**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	User Layer submits to ComAgent an egress stack event that refers to an unknown Sub-Resource.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CAHSTxDscrdUnkwnRsrc**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress stack events discarded because they referred to an unknown Resource.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	User Layer submits to ComAgent an egress stack event that refers to an unknown Resource.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CAHSTxRsrc**

<b>Measurement Group</b>	ComAgent Performance, ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	Number of egress stack events that were routed to a known Resource.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	User Layer submits to ComAgent an egress stack event destined to a known Resource.
<b>Measurement Scope</b>	Server

**Recovery**

No action required.

**CAMxFIFOQueueFul**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CAPSTxDscrdUnkwnGrp

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress stack events discarded because they referred to a Peer Group which was unknown
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each stack event submitted to ComAgent by a local User Layer and the stack event reference an Unknown Peer Group
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CAPSTxDscrdUnavailGrp

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Group ID)
<b>Description</b>	The number of egress stack events discarded because they referred to a Peer Group which was unavailable
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each stack event submitted to ComAgent by a local User Layer and the stack event reference an Unavailable Peer Group
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CAPSTxDscrdCongPeer

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Group ID)
<b>Description</b>	The number of egress stack events discarded because of Peer congestion.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CARsrcPoolFul

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	ComAgent internal resource pool exhaustion condition.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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).
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of stack events discarded due to Routed Service congestion.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CARSTxDscrdInternalErr

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

#### Recovery

Contact [My Oracle Support \(MOS\)](#) for assistance.

**CARSTxDscrdSvcUnavail**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of stack events discarded because they were submitted to an Unavailable Routed Service.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Stack event submitted to ComAgent by a local User Layer, and the stack event references an Unavailable Routed Service.  <b>Note:</b> 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: <ul style="list-style-type: none"> <li>• Maintenance actions are performed that result in a loss of communication between servers.</li> <li>• Network problems result in a loss of communication between servers.</li> <li>• Server overload can result in routes becoming unavailable for some stack events.</li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CARxDiscUnexpEvent**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of ingress events discarded because it was unexpected in the connection operational state
<b>Collection Interval</b>	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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of ingress events discarded because failed to deserialize (event not part of stack service language).
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each StackEvent received from a configured peer server that resulted in any decode failures within ComAgent Stack.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.
	This value provides a measure of how many ingress messages are discarded by ComAgent due to internal decode error condition.

### CARxDscrdIncompat

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

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

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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple



<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of ingress events discarded as it doesn't contain enough bytes (less than event header bytes).
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each StackEvent received from configured peer with message size less than the minimum required Header.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.
	This value provides a measure of how many ingress messages are discarded by Communication Agent due to message size error.

### CARxDscrdUnkServer

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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of User Data ingress events discarded because stack layer is not known.
<b>Collection Interval</b>	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.

**CAStackQueueFull**

**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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CATransDscrdInvCorrId

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of received stack events that were received and discarded because they did not correlate with a pending transaction.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	ComAgent receives a response stack event that contains a correlation ID that does not match a pending transaction record.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CATransDscrdStaleErrRsp

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• Network problems result in intermittent loss of communication between servers.</li> </ul>

- 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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CATransEndAbnorm

<b>Measurement Group</b>	ComAgent Exception, ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of reliable transactions that terminated abnormally.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>• Transaction times-out waiting for a response, and the maximum number of transmits has been reached.</li> <li>• Transaction time-to-live limit is exceeded.</li> <li>• Transaction terminated due to lack of resources.</li> </ul> <p><b>Note:</b> This measurement is NOT pegged for these conditions:</p> <ul style="list-style-type: none"> <li>• Transaction involves an unknown service.</li> <li>• Transaction involves an unregistered Routed Service.</li> </ul>
<b>Measurement Scope</b>	Server

#### Recovery

1. Check the ComAgent Exception report to further diagnose the reasons why transactions are failing.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CATransEndAbnormRateAvg

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Average rate per second that ComAgent transactions ended abnormally during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Rate of transaction failures due to final timeouts. Failed Transaction Rate monitoring is an average rate using an exponential smoothing 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 trouble shooting when compared to other measurements.

**Measurement Scope** Server

**Recovery**

No action necessary.

### CATransEndAbnormRateMax

**Measurement Group** ComAgent Performance

**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 an exponential smoothing 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 trouble shooting 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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of reliable transactions initiated by local User Layers that ended abnormally with an error response from a destination server.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CATransEndNoResources

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of reliable transactions initiated by local User Layers that ended abnormally due to lack of resources.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CATransEndNoResponse**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of reliable transactions initiated by local User Layers that ended abnormally due to a timeout waiting for a response.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CATransEndUnkwnSvc**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to an unknown service.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server

**Recovery**

1. Use **Main Menu > Communication Agent > Configuration > Routed Services** to confirm that all services expected by local applications are present.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CATransEndUnregSvc**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server

**Recovery**

A non-zero value in this measurement indicates a software malfunction. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CATransNoReTxMaxTTL**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of reliable transactions abnormally ended because of Max Time to live exceeded without any retransmits.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• Server overload that can result in delayed responses.</li> <li>• Unexpected conditions in software.</li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) if assistance is needed

### CATransRetx

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of times stack events were retransmitted.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• Maintenance actions are performed that result in a loss of communication between servers.</li> <li>• Network problems result in a loss of communication between servers.</li> <li>• Server overload can result in delayed responses.</li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CATransReTxExceeded

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of reliable transactions abnormally ended because of Max number of Retries exceeded.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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. 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. 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

<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• Maintenance actions performed that result in a loss of communication between servers.</li> <li>• Server overload that can result in delayed responses.</li> <li>• Unexpected conditions in software.</li> </ul>
----------------------	---

<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) if assistance is needed

**CATxDscrdBundle**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress bundled event discarded during routing.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time an egress bundled event is discarded during routing
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**CATxDscrdConnUnAvail**

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of User Data egress events discarded because connection was not in-service(down/blocked/not aligned).
<b>Collection Interval</b>	30 min

<b>Peg Condition</b>	For each User Data egress StackEvent that is discarded by ComAgent Stack, due to connection status not being in-service.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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).
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	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

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

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

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

<b>Measurement Group</b>	ComAgent Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CATxDscrdUnkServer**

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

<b>Measurement Group</b>	ComAgent Exception
--------------------------	--------------------

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

Measurement Tag	Description	Collection Interval
CAHSTxRsrcRateMax	Maximum rate per second of egress stack events routed to a known Resource	30 min
CAPeakDataFIFOQueueUtil	Maximum percentage of ComAgent DataFIFO Queue Utilization	30 min
CAPeakMxFIFOQueueUtil	Maximum percentage of ComAgent MxFIFO Queue Utilization	30 min
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



Measurement Tag	Description	Collection Interval
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
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

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Average percentage of ComAgent DataFIFO Queue Utilization.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average ComAgent connection DataFIFO Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CAAvgMxFIFOQueueUtil

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Average percentage of ComAgent MxFIFO Queue Utilization.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average ComAgent connection MxFIFO Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CAAvgQueueUtil

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Average percentage of Queue Utilization.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average ComAgent Egress Task Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

## CAAvgRsrcPoolUtil

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

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

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average Number of User Data egress events received from stacks to deliver it to remote.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average User Data egress StackEvent sample taken during the collection interval.
<b>Measurement Scope</b>	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**

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

<b>Measurement Group</b>	ComAgent Performance, ComAgent Exception
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	Number of egress stack events that were routed to a known Resource.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	User Layer submits to ComAgent an egress stack event destined to a known Resource.
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action required.

### CAHSTxRsrcRateAvg

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	Average rate per second of egress stack events routed to a known Resource.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Based upon the SysMetric.
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action required.

### CAHSTxRsrcRateMax

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by Resource ID)
<b>Description</b>	Maximum rate per second of egress stack events routed to a known Resource.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Based upon the SysMetric.
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action required.

**CAPeakDataFIFOQueueUtil**

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Maximum percentage of ComAgent DataFIFO Queue Utilization.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The maximum ComAgent DataFIFO Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**CAPeakMxFIFOQueueUtil**

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Maximum percentage of ComAgent MxFIFO Queue Utilization.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The maximum ComAgent connection MxFIFO Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CAPeakQueueUtil

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Maximum percentage of Queue Utilization.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The maximum ComAgent Egress Task Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CAPeakRsrcPoolUtil

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

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

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

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Group ID)



<b>Description</b>	The number of egress stack events submitted to the Peer Group Service to be routed to a known Peer Group.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each stack event submitted to ComAgent Peer Group Service by a local User Layer
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action required. This measurement is useful when compared with other Peer Group Service measurements.

### CAPSTxGrpSuccess

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Group ID)
<b>Description</b>	The number of egress stack events successfully routed to a known Peer Group.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each stack event submitted to ComAgent Peer Group Service by a local User Layer and successfully routed
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action required. This measurement is useful when compared with other Peer Group Service measurements.

### CARSTx

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of stack events submitted to a Routed Service for routing.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Stack event submitted to ComAgent Routed Service by a local User Layer
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action necessary

**CARx**

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

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

**Recovery**

No action required

**CARxEventsBundled**

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Number of stackevents received in ComAgent Bundled events
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a stackevent is received in ComAgent Bundled events
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

### CARxSuccess

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

<b>Measurement Group</b>	ComAgent Exception, ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Number of reliable transactions that terminated abnormally.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>• Transaction times-out waiting for a response, and the maximum number of transmits has been reached.</li> <li>• Transaction time-to-live limit is exceeded.</li> <li>• Transaction terminated due to lack of resources.</li> </ul>
	<p><b>Note:</b> This measurement is NOT pegged for these conditions:</p> <ul style="list-style-type: none"> <li>• Transaction involves an unknown service.</li> </ul>

- 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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### CATransEndAbnormRateAvg

**Measurement Group** ComAgent Performance

**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 an exponential smoothing 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 trouble shooting when compared to other measurements.

**Measurement Scope** Server

#### Recovery

No action necessary.

### CATransEndAbnormRateMax

**Measurement Group** ComAgent Performance

**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 an exponential smoothing 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 trouble shooting when compared to other measurements.

**Measurement Scope** Server

**Recovery**

No action necessary.

**CATransEndNorm**

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

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

**Recovery**

No action necessary.

**CATransPendingMax**

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by Service ID)

<b>Description</b>	Maximum number of allocated pending transaction records.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	When a pending transaction record is allocated, and the total count of allocated pending transaction records exceeds the current peak.
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action necessary.

### CATransRateAvg

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Average rate per second that ComAgent transactions were started during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Transaction rate monitoring is an average rate using an exponential smoothing 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 trouble shooting when compared to other measurements.
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action necessary.

### CATransRateMax

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by Service ID)
<b>Description</b>	Maximum rate per second that ComAgent transactions were started during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Transaction rate monitoring is an average rate using an exponential smoothing 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 trouble shooting 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.

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Transaction ends either normally or abnormally.
<b>Measurement Scope</b>	Server
<b>Recovery</b>	No action necessary.

## CATx

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

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



**Recovery**

No action required

**CATxEventsBundled**

<b>Measurement Group</b>	ComAgent Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of stackevents transmitted through ComAgent Bundled events
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a stackevent is transmitted through ComAgent Bundled events
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
	No action required

**CATxSuccess**

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

<b>Measurement Dimension</b>	Arrayed (by Mediation Rule Template ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	A Rule Template is invoked during the message processing.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	CAPM
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Mediation Rule Template ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	A Condition Set matches during the message processing.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	CAPM
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Mediation Rule Template ID)

<b>Description</b>	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.  <b>Note:</b> This counter is incremented only once even if several actions within an action set have failed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	At least one action within an Action Set has failed.
<b>Measurement Scope</b>	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**

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

**Recovery**

No action required.

**CAPM\_MsgCopyTriggered**

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

**Recovery**

No action required.

**CAPM\_RxRejectWithErrorAnswer**

<b>Measurement Group</b>	CAPM
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Transport Connection)
<b>Description</b>	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
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When mediation indicates to send back an answer
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**CAPM\_RxSilentDiscard**

<b>Measurement Group</b>	CAPM
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Transport Connection)
<b>Description</b>	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
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When mediation indicates to silently discard the request
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**CAPM\_RxRedirectHost**

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

<b>Peg Condition</b>	When the action "Redirect Request-Host" successfully executes
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### CAPM\_RxRedirectRealm

<b>Measurement Group</b>	CAPM
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Connection ID)
<b>Description</b>	The number of times the Request was redirected with the 3011 response sent by Mediation
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the action "Redirect Request-Realm" successfully executes
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### CAPM\_RxProcessNAI

<b>Measurement Group</b>	CAPM
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Template Name)
<b>Description</b>	The number of times the Request was modified by the "Process Decorated NAI" Mediation action
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the action "Process Decorated NAI" successfully executes
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### CAPM\_Match\_Rule

<b>Measurement Group</b>	CAPM
<b>Measurement Type</b>	Simple

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

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

<b>Measurement Group</b>	Connection Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of connection ingress message processing exception events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each EvRxException event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**EvTxException**

<b>Measurement Group</b>	Connection Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection egress message processing exception events.



<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each EvTxException event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	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
EcCL4	Connection onset for egress message rate in congestion level 4.	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
IcRateAvg	Connection ingress message rate average.	5 min
IcRatePeak	Connection ingress message rate peak.	5 min

Measurement Tag	Description	Collection Interval
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
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
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
TmEcCL4	Connection timer for egress message rate in congestion level 4.	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

Measurement Tag	Description	Collection Interval
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

### DclTxConnQueueAvg

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (Connection ID)
<b>Description</b>	DCL egress connection message queue utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the DclTxConnQueue metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### DclTxConnQueuePeak

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (Connection ID)
<b>Description</b>	DCL egress connection message queue utilization peak.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the DclTxConnQueue metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**EcCL1**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection onset for egress message rate in congestion level 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL1.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**EcCL2**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection onset for egress message rate in congestion level 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL2.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**EcCL3**

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

**Measurement Scope** Site

**Recovery**  
No action required.

**EcCL4**

**Measurement Group** Connection Performance

**Measurement Type** Simple

**Measurement Dimension** Arrayed (by Connection ID)

**Description** Connection onset for egress message rate in congestion level 4.

**Collection Interval** 5 min

**Peg Condition** This measurement is incremented for each onset of CL4.

**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

Layer	Event	Reason
		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	MpEvRxException	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.

**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

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of connection ingress messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxAllDrop**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection ingress messages dropped (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxAllLenAvg**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection ingress message length average (routable and peer-to-peer).
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	This measurement is updated for each ingress message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxAllLenPeak

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection ingress message length peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated for each ingress message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxP0

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection ingress messages with priority 0.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 0 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxP1

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection ingress messages with priority 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 1 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxP2

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection ingress messages with priority 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 2 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxP3

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

No action required.

**TmEcCL1**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Timer
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection timer for egress message rate in congestion level 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each millisecond the connection is in CL1.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required.	

**TmEcCL2**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Timer
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection timer for egress message rate in congestion level 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each millisecond the connection is in CL2.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required.	

**TmEcCL3**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Timer
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection timer for egress message rate in congestion level 3.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	This measurement is incremented for each millisecond the connection is in CL3.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TmEcCL4

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Timer
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection timer for egress message rate in congestion level 4.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each millisecond the connection is in CL4.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxAll

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection egress messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each egress message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxAllDrop

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	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).



<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated for each egress message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxConnTotalDataChunks**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of total data chunks sent on the SCTP connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When data chunks are transmitted on the SCTP connection.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### **TxP0**

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection ingress messages with priority 0.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 0 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxP1**

<b>Measurement Group</b>	Connection Performance
--------------------------	------------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection egress messages with priority 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each egress message with priority 1 during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxP2

<b>Measurement Group</b>	Connection Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection egress messages with priority 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each egress message with priority 2 during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxP3

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

<b>Measurement Group</b>	Connection Service
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection exception events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each EvException event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### EvFsmAdState

<b>Measurement Group</b>	Connection Service
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection FSM administrative state change events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each EvFsmAdState event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### EvFsmException

<b>Measurement Group</b>	Connection Service
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection FSM exception events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each EvFsmException event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### EvFsmOpState

<b>Measurement Group</b>	Connection Service
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection FSM operational state change events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each EvFsmOpState event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmFsmOpStateAvailable**

<b>Measurement Group</b>	Connection Service
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection timer for operational state available.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each millisecond the connection is operationally available.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmFsmOpStateDegraded**

<b>Measurement Group</b>	Connection Service
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection timer for operational state degraded.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each millisecond the connection is operationally degraded.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmFsmOpStateUnavailable**

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

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)

<b>Description</b>	Connection ingress buffer utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxBufPeak

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection ingress buffer utilization peak.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxOctets

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection ingress octets.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated for each ingress message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxSctpChunk

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)

<b>Description</b>	SCTP total chunks on ingress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxSctpDupTsn

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	SCTP duplicate TSNs on ingress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxSctpGapAck

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	SCTP gap acknowledgement on ingress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxTcpDupPkt

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



<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxBufAvg

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection egress buffer utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack. <b>Note:</b> This measurement is not supported (always zero) for SCTP connections.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxBufPeak

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Connection egress buffer utilization peak.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack. <b>Note:</b> This measurement is not supported (always zero) for SCTP connections.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxOctets

<b>Measurement Group</b>	Connection Transport
--------------------------	----------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Connection egress octets.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated for each egress message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxSctpChunk

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	SCTP total chunks on egress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxSctpRtxChunk

<b>Measurement Group</b>	Connection Transport
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	SCTP retransmitted chunks on egress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output from Linux networking stack.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxTcpRtxSeg

<b>Measurement Group</b>	Connection Transport
--------------------------	----------------------

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

<b>Measurement Group</b>	DA-MP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress message processing exception events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each MpEvRxException event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpEvTxException**

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

<b>Measurement Tag</b>	<b>Description</b>	<b>Collection Interval</b>
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

## Measurements

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
MpIcP3	The number of DA-MP ingress messages with priority 3.	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
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
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	5 min

Measurement Tag	Description	Collection Interval
	overload control with priority 2 and color green.	
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
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

Measurement Tag	Description	Collection Interval
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
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



Measurement Tag	Description	Collection Interval
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
MpRxDiamP2	DA-MP ingress Diameter messages with priority 2.	5 min
MpRxDiamP3	DA-MP ingress Diameter messages with priority 3.	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

Measurement Tag	Description	Collection Interval
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
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

Measurement Tag	Description	Collection Interval
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
MpTxRadiusAll	DA-MP egress RADIUS messages (routable and peer-to-peer).	5 min
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
MpTxRadiusP3	DA-MP egress RADIUS messages with priority 3.	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

Measurement Tag	Description	Collection Interval
RclTxTaskQueuePeak	RCL egress task message queue utilization peak.	5 min
TmMpCpuCL1	DA-MP timer for CPU utilization in congestion level 1.	5 min
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

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DCL egress task message queue utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the DclTxTaskQueue metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### DclTxTaskQueuePeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DCL egress task message queue utilization peak.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the DclTxTaskQueue metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpCpuAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP average CPU utilization by Diameter process.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the dsr.Cpu metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpCpuCL1

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP onset for CPU utilization in congestion level 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL1.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpCpuCL2

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP onset for CPU utilization in congestion level 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL2.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpCpuCL3

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP onset for CPU utilization in congestion level 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL3.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpCpuPeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP peak CPU utilization by Diameter process.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the dsr.Cpu metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpDiamAnsTimeAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Diameter answer message processing time average (ingress to egress).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Updated for each egress Diameter answer message during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required.	

### MpDiamAnsTimePeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Diameter answer message processing time peak (ingress to egress).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Updated for each egress Diameter answer message during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required.	

### MpDiamMsgPoolAvg

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

**Recovery**

No action required.

**MpDiamMsgPoolPeak**

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

**Recovery**

No action required.

**MpDiamReqTimeAvg**

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

**Recovery**

No action required.

**MpDiamReqTimePeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Diameter request message processing time peak (ingress to egress).
<b>Collection Interval</b>	5 min



<b>Peg Condition</b>	Updated for each egress Diameter request message during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpErt**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP egress messages on routing egress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each egress message during the Egress Routing phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpErtDrop**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP egress messages discarded or rejected by routing egress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

Layer	Event	Reason
		DtlsMsgOversized
RCL	MpEvTxException	RclTxTaskQueueCongested
		EtrPoolCongested
		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

<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 0 and color yellow during the Ingress Control phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpIcP1G**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages with priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 1 and color green during the Ingress Control phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpIcP1Y**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages with priority 1 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 1 and color yellow during the Ingress Control phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpIcP2G**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages with priority 2 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 2 and color green during the Ingress Control phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpIcP2Y**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages with priority 2 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 2 and color yellow during the Ingress Control phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpIcP3**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages with priority 3.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	This measurement is incremented for each ingress message with priority 3 during the Ingress Control phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpIrt

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages on routing ingress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message during the Routing Ingress phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpIrtDrop

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages discarded or rejected by routing ingress.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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	MpIrtException	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

<b>Peg Condition</b>	This measurement is incremented for each onset of CL1.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpMemCL2**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP onset for memory utilization in congestion level 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL2.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpMemCL3**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP onset for memory utilization in congestion level 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL3.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpOcDrop**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	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

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages discarded or rejected by overload control with priority 0 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcDropP1G

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages discarded or rejected by overload control with priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcDropP1Y

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages discarded or rejected by overload control with priority 1 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcDropP2G

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages discarded or rejected by overload control with priority 2 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Scope</b>	Site
--------------------------	------

**Recovery**

No action required.

**MpOcDropP2Y**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages discarded or rejected by overload control with priority 2 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 0.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP0 metric.
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

### MpOcRateAvgP0G

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 0 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP0G metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRateAvgP0Y

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 0 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP0Y metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRateAvgP1

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

No action required.

### MpOcRateAvgP1G

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP1G metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRateAvgP1Y

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 1 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP1Y metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRateAvgP2

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

**Recovery**

No action required.

**MpOcRateAvgP2G**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 2 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP2G metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpOcRateAvgP2Y**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 2 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP2Y metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpOcRateAvgP3**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average offered to overload control with priority 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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



<b>Peg Condition</b>	Output measurement of the MpOcRateP0Y metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRatePeakP1

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate peak offered to overload control with priority 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP1 metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRatePeakP1G

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate peak offered to overload control with priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP1G metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRatePeakP1Y

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate peak offered to overload control with priority 1 and color yellow.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP1Y metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRatePeakP2

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate peak offered to overload control with priority 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP2 metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRatePeakP2G

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate peak offered to overload control with priority 2 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP2G metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRatePeakP2Y

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single

<b>Description</b>	DA-MP ingress message rate peak offered to overload control with priority 2 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP2Y metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpOcRatePeakP3

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate peak offered to overload control with priority 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpOcRateP3 metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRadiusAnsTimeAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	RADIUS answer message processing time average (ingress to egress).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRadiusAnsTimePeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	RADIUS answer message processing time peak (ingress to egress).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRadiusMsgPoolAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP RADIUS message pool utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all RADIUS PDU Buffer Pool utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRadiusMsgPoolPeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP RADIUS message pool utilization peak.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	The maximum RADIUS PDU Buffer Pool utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRadiusReqTimeAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	RADIUS request message processing time average (ingress to egress).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRadiusReqTimePeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	RADIUS request message processing time peak (ingress to egress).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	

No action required.

### MpRxAll

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each ingress message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRxAllDrop

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress messages dropped (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxAllRateAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate average (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpRxAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxAllRatePeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress message rate peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpRxAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxDiamAll**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**MpRxDiamAllLen**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Bucket)
<b>Description</b>	DA-MP ingress Diameter message length (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Updated for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxDiamAllLenAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter message length (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Updated for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxDiamAllLenPeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter message length (routable and peer-to-peer).
<b>Collection Interval</b>	5 min



<b>Peg Condition</b>	Updated for each ingress Diameter message during the Rx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxDiamAllRateAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter message rate average (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpRxDiamAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxDiamAllRatePeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter message rate peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpRxDiamAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpRxDiamP0**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter messages with priority 0.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each ingress Diameter message with priority 0 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRxDiamP1

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter messages with priority 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each ingress Diameter message with priority 1 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRxDiamP2

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter messages with priority 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each ingress Diameter message with priority 2 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRxDiamP3

<b>Measurement Group</b>	DA-MP Performance
--------------------------	-------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP ingress Diameter messages with priority 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each ingress Diameter message with priority 3 during the Message Priority phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRxRadiusAll

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress RADIUS messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged when a RADIUS message is received from a RADIUS Peer Node on a connection.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRxRadiusAllLen

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Bucket ID)
<b>Description</b>	DA-MP ingress RADIUS message length (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged immediately after reading a RADIUS message from a RADIUS connection socket and prior to any further processing.
	<b>Note:</b> 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

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress RADIUS messages with priority 0.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpRxRadiusP3

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP ingress RADIUS messages with priority 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxAll

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP egress messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each egress message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	

No action required.

### MpTxAllDrop

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP egress messages dropped (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxAllRateAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress message rate average (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpTxAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpTxAllRatePeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress message rate peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpTxAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpTxDiamAll**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each egress Diameter message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**MpTxDiamAllLen**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Bucket)
<b>Description</b>	DA-MP egress Diameter message length (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Updated for each egress Diameter message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site



**Recovery**

No action required.

**MpTxDiamAllLenAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter message length (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Updated for each egress Diameter message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**MpTxDiamAllLenPeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter message length peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Updated for each egress Diameter message during the Tx phase (routable and peer-to-peer).
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**MpTxDiamAllRateAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter message rate average (routable and peer-to-peer).
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Output measurement of the MpTxDiamAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxDiamAllRatePeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter message rate peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpTxDiamAllRate metric.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxDiamP0

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter messages with priority 0.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each egress Diameter message with priority 0 during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxDiamP1

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	DA-MP egress Diameter messages with priority 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each egress Diameter message with priority 1 during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxDiamP2

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter messages with priority 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each egress Diameter message with priority 2 during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxDiamP3

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress Diameter messages with priority 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Incremented for each egress Diameter message with priority 3 during the Tx phase.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxRadiusAll

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP egress RADIUS messages (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged when a RADIUS message is sent to a RADIUS Peer Node on a connection.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxRadiusAllLen

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Bucket ID)
<b>Description</b>	DA-MP ingress RADIUS message length (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged when a routable RADIUS message is sent to any RADIUS Peer Node on a connection.  <b>Note:</b> 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
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxRadiusAllLenAvg

<b>Measurement Group</b>	DA-MP Performance
--------------------------	-------------------

<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress RADIUS message length average (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged when a routable RADIUS message is sent to a RADIUS Peer Node on a connection.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxRadiusAllLenPeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress RADIUS message length peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpTxRadiusAllRateAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress RADIUS message rate average (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpTxRadiusAllRate metric.
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**MpTxRadiusAllRatePeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP egress RADIUS message rate peak (routable and peer-to-peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Output measurement of the MpTxRadiusAllRate metric.
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**MpTxRadiusP0**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP egress RADIUS messages with priority 0.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged when a RADIUS message assigned a priority of 0 is sent to any RADIUS Peer Node on a connection.
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**MpTxRadiusP3**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP egress RADIUS messages with priority 3.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged when a RADIUS message assigned a priority of 3 is sent to any RADIUS Peer Node on a connection.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RclEtrPoolAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ETR pool utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all RADIUS ETR Pool utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RclEtrPoolPeak**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ETR pool utilization peak.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum RADIUS ETR Pool utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RclItrPoolAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average

<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ITR pool utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all RADIUS ITR Pool utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RclItrPoolPeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ITR pool utilization peak.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum RADIUS ITR Pool utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RclRxTaskQueueAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ingress task message queue utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all RADIUS Ingress Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RclRxTaskQueuePeak

<b>Measurement Group</b>	DA-MP Performance
--------------------------	-------------------



<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ingress task message queue utilization peak.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum RADIUS Ingress Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RclTxTaskQueueAvg

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL egress task message queue utilization average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all RADIUS Egress Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RclTxTaskQueuePeak

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL egress task message queue utilization peak.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum RADIUS Egress Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmMpCpuCL1**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP onset for CPU utilization in congestion level 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each onset of CL1.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmMpCpuCL2**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Timer
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP timer for CPU utilization in congestion level 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each millisecond CPU utilization is in CL2.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmMpCpuCL3**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Timer
<b>Measurement Dimension</b>	Single
<b>Description</b>	DA-MP timer for CPU utilization in congestion level 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Description</b>	DA-MP timer for memory utilization in congestion level 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each millisecond memory utilization is in CL3.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmRclEtrHoldTimeAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ETR hold time average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average RADIUS ETR hold time sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TmRclItrHoldTimeAvg**

<b>Measurement Group</b>	DA-MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	RCL ITR hold time average.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average RADIUS ITR hold time sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	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

<b>Measurement Group</b>	DA-MP Service
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP exception events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each MpEvException event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### MpEvFsmException

<b>Measurement Group</b>	DA-MP Service
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DA-MP connection FSM exception events.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented for each MpEvFsmException event, regardless of event reason or throttling.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	

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 31: 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
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

Measurement Tag	Description	Collection Interval
TxGlaFullDRLAnswerDiscard	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.	5 min

## RxApplRequestNoRoutes

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by DSR Application ID)
<b>Description</b>	Number of Request messages received from a DSR Application that could not be routed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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.</p> <p>The DSR Application is forwarding Request messages that cannot be routed to a peer. The following problems could exist:</p> <ul style="list-style-type: none"> <li>• A Peer Routing Rule could be missing or incorrectly configured.</li> <li>• The DSR Application could be incorrectly configured.</li> <li>• The Request message from a downstream peer was mis-routed to the DSR.</li> </ul>
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application ID)
<b>Description</b>	Number of Request messages received for a DSR Application that could not be routed to the DSR Application because the DSR Application was Unavailable.
<b>Collection Interval</b>	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**

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by DSR Application ID)
<b>Description</b>	Number of Request messages received for a DSR Application which could not be routed to DSR Application because it was not available.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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".</p> <p>A DSR Application's Operational Status is "Unavailable" when one of the following conditions occur:</p> <ul style="list-style-type: none"> <li>• The operator has removed the DSR Application from service (Admin State is "Disabled").</li> <li>• The DSR Application was congested when an attempt to route a Request message to the DSR Application occurred.</li> </ul> <p>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).</p>
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.
<b>Collection Interval</b>	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, 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, contact [My Oracle Support \(MOS\)](#).

**TxFabrFullDRLRequestReject**

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Request Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**TxFabrFullDRLAnswerDiscard**

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Answer message discarded because the "All-Connections Event Queue" was full.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### TxRbarFullDRLRequestReject

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Request message is discarded because the DRL's Request Queue is full.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### TxRbarFullDRLAnswerDiscard

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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, contact [My Oracle Support \(MOS\)](#).

### TxGlaFullDRLAnswerDiscard

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an Answer message is discarded because the "All-Connections Event Queue" was full.
<b>Measurement Scope</b>	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, 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 32: 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
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

## Measurements

Measurement Tag	Description	Collection Interval
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
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

Measurement Tag	Description	Collection Interval
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
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



<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by DSR Application ID)
<b>Description</b>	Number of Answer messages successfully forwarded to a DSR Application
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL successfully enqueues an Answer message on the DSR Application's internal Message Queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxApplAnswerReceived

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by DSR Application ID)
<b>Description</b>	Number of Request messages received from a DSR Application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL successfully receives a Request message from a DSR Application.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxApplRequestFwdSuccess

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by DSR Application ID)
<b>Description</b>	Number of Request messages successfully forwarded to a DSR Application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL successfully enqueues a Request message on the DSR Application's internal Message Queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxApplRequestReceived**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by DSR Application ID)
<b>Description</b>	Number of Request messages received from a DSR Application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL successfully receives a Request message from a DSR Application.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxCpaAnswerMsgQueueAvg**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Answer Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Answer Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxCpaAnswerMsgQueuePeak**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Description</b>	The peak CPA Application Event Message Queue utilization measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Event Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required.

### RxCpaMsgRateAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average DSR Application's Message Processing rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all message processing rate samples taken during the collection interval. Used for congestion control by DSR.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxCpaMsgRatePeak

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DSR Application's Message Processing rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum message processing rate sample taken during the collection interval. Used for congestion control by DSR.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxCpaRequestMsgQueueAvg**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Request Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxCpaRequestMsgQueuePeak**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Request Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxCpaRequestProcessed**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The total number of Requests processed by DSR Application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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. 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxDmiwfAnswerMsgQueuePeak

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum Answer Message Queue utilization (0-100%) taken during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Answer Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxDmiwfAnswerMsgQueueAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average of all Answer Message Queue utilization samples taken during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Answer Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxDmiwffullDRLRequestReject**

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Request message discarded because the DRL's Request Queue was full.
<b>Measurement Scope</b>	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, contact the [My Oracle Support \(MOS\)](#) for assistance.

**TxDmiwffullDRLAnswerDiscard**

<b>Measurement Group</b>	DSR Application Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Answer message discarded because the All-Connections Event Queue was full
<b>Measurement Scope</b>	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, contact the [My Oracle Support \(MOS\)](#) for assistance.

## RxDmiwfMsgRatePeak

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DSR Application's Ingress Message Rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum DSR Application Ingress Message Rate sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxDmiwfMsgRateAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average DSR Application's Ingress Message Rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all DSR Application Ingress Message Rate samples taken during the collection interval
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxDmiwfRequestProcessed

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Requests processed by a DSR Application during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Request message successfully de-queued from the DSR Application's Request Message queue
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxDmiwfAnswerProcessed

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Answers processed by a DSR Application during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Answer message successfully de-queued from the DSR Application's Answer Message" queue
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxFabrMsgRateAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average

<b>Measurement Dimension</b>	Single
<b>Description</b>	The average DSR Application's Ingress Message Rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all DSR Application Ingress Message Rate samples taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxFabrMsgRatePeak**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DSR Application's Ingress Message Rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum DSR Application Ingress Message Rate sample taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxFabrRequestMsgQueueAvg**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Request Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxFabrRequestMsgQueuePeak**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Request Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### RxFabrRequestProcessed

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Requests processed by a DSR Application during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Request message successfully de-queued from the DSR Application's Request Message queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxGlaMsgRateAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average DSR Application's Ingress Message Rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all DSR Application Ingress Message Rate samples taken during the collection interval.
<b>Measurement Scope</b>	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.

## RxGlaMsgRatePeak

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DSR Application's Ingress Message Rate measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum DSR Application Ingress Message Rate sample taken during the collection interval.
<b>Measurement Scope</b>	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.

## RxGlaRequestMsgQueueAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Request Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Request Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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.

**RxGlaRequestProcessed**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Requests processed by a DSR Application during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Request message successfully de-queued from the DSR Application's Request Message queue.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**RxPcaRequestProcessed**

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Number of Requests processed by Policy and Charging DSR Application during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Diameter Request message is successfully de-queued from the Policy and Charging DSR Application's Request Message queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxPcaAnswerProcessed

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Diameter Answer messages processed by Policy and Charging DSR Application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Diameter Answer message is successfully de-queued from the Policy and Charging DSR Application's Request Message queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxPcaMsgRateAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average Policy and Charging DSR Application's Ingress Message Rate measured during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the average of all DSR Application Ingress Message Rate samples is taken during the collection interval.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Display and monitor the DSR Application message rate by selecting <b>Diameter &gt; Maintenance &gt; Applications</b>. Verify that the message rate is set as expected.</li> </ol>



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

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak Policy and Charging DSR Application's Ingress Message Rate measured during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the maximum of all DSR Application Ingress Message Rate samples is taken during the collection interval.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average DSR Application's Ingress Message Rate measured during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the average of all DSR Application Ingress Message Rate samples is taken during the collection interval.
<b>Measurement Scope</b>	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 \(MOS\)](#).

### RxRbarMsgRatePeak

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak DSR Application's Ingress Message Rate measured during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the maximum DSR Application Ingress Message Rate sample is taken during the collection interval
<b>Measurement Scope</b>	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 \(MOS\)](#).

### RxRbarRequestMsgQueueAvg

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average Request Message Queue utilization (0-100%) measured during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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, contact [My Oracle Support \(MOS\)](#).

### RxRbarRequestMsgQueuePeak

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the maximum Request Message Queue utilization sample is taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### RxRbarRequestProcessed

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Number of Requests processed by a DSR Application during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Request message is successfully de-queued from the DSR Application's Request Message queue.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TxApplTransSuccess

<b>Measurement Group</b>	DSR Application Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by DSR Application ID)
<b>Description</b>	Number of Request messages received from a DSR Application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL successfully receives a Request message from a DSR Application.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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 33: 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

Measurement Tag	Description	Collection Interval
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
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

<b>Measurement Group</b>	Diameter Egress Transaction, Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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. 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**

<b>Measurement Group</b>	Diameter Egress Transaction
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Redirect Realm Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TxAnswerTimeout**

<b>Measurement Group</b>	Diameter Egress Transaction
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	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: <ul style="list-style-type: none"> <li>• The peer associated with this connection may be experiencing congestion, causing delays in sending the Answer response.</li> <li>• IP Network congestion.</li> <li>• 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.</li> </ul>
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When timer PENDING-ANSWER-TIMER expires.  The connection measurement is associated with the connection from which the corresponding Request message was sent.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	



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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxAnswerTimeoutAllMp

<b>Measurement Group</b>	Diameter Egress Transaction
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When timer PENDING-ANSWER-TIMER expires.  The connection measurement is associated with the connection from which the corresponding Request message was sent.  <b>Note:</b> This measurement is the DA-MP equivalent to the "per connection" measurement <a href="#">TxAnswerTimeout</a> .
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxAnswerTimeoutMp

<b>Measurement Group</b>	Diameter Egress Transaction
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When timer PENDING-ANSWER-TIMER expires. The connection measurement is associated with the connection from which the corresponding Request message was sent.  <b>Note:</b> This is the DA-MP equivalent to the "per connection" measurement, <a href="#">TxAnswerTimeout</a> .

**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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxConnectionFailed

<b>Measurement Group</b>	Diameter Egress Transaction
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of times that a pending peer-to-peer transaction was abandoned due to a transport connection failure.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group

#### Recovery

1. Connection status can be monitored using the **Diameter > Maintenance > Connections** page.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxConnAnswerMsgs

<b>Measurement Group</b>	Diameter Egress Transaction, Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of routable Answer messages successfully sent on the connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged when a Diameter Answer message is sent to the peer.
<b>Measurement Scope</b>	Server Group

#### Recovery

No action required.

**TxConnRequestMsgs**

<b>Measurement Group</b>	Diameter Egress Transaction, Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of routable Request messages successfully sent on the connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged when a Diameter request message is sent to the peer.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TxRequestSuccessAllConn**

<b>Measurement ID</b>	10043
<b>Measurement Group</b>	Diameter Egress Transaction
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages successfully routed to a peer.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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 34: 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
RxMsgsOCYellowPri0DiscardMp	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
RxMsgsOCYellowPri1DiscardMp	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
RxMsgsOCYellowPri2DiscardMp	The number of Yellow ingress Priority 2 messages discarded by the DA-MP Overload Control component.	5 min

Measurement Tag	Description	Collection Interval
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

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Number of times that the supported Application IDs received from the peer were inconsistent with another transport connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvTransLifetimeExceededMp

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of transaction failures because “Transaction Lifetime” exceeded.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DRL was prevented from rerouting a Request message because the “Transaction Lifetime” was exceeded.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### EvTransRejectedByExternalNode

<b>Measurement ID</b>	14068
<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of transactions rejected by an external node with a non-2xxx Result-Code value.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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)  <b>Note:</b> This measurement is not pegged for answer generated by application.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxAnswerMsgQueueFullDiscard**

<b>Measurement Group</b>	Diameter Egress Transaction, Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxAnswerUnexpected**

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**RxAnswerUnexpectedAllMp**

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Answer messages received from an upstream peer that could not be associated with a pending transaction.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxDOCRejectMp**

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress messages that were rejected with error answer due to local DA-MP danger of CPU congestion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged for each message discarded with a DIAMETER (Error) Answer due to DA-MP danger of CPU congestion.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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.</li> <li>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 <b>Status &amp; Manage &gt; Server</b> page.</li> <li>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 <b>Status &amp; Manage &gt; KPIs</b> page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.</li> </ol>



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, contact [My Oracle Support \(MOS\)](#).

### RxMsgsOCGreenPri0DiscardMp

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Green ingress Priority 0 messages discarded by the DA-MP Overload Control component.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Priority 0 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### RxMsgsOCYellowPri0DiscardMp

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Yellow ingress Priority 0 messages discarded by the DA-MP Overload Control component.
<b>Collection Interval</b>	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, 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**.

- If the problem persists, contact [My Oracle Support \(MOS\)](#).

### RxMsgsOCYellowPri1DiscardMp

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Yellow ingress Priority 1 messages discarded by the DA-MP Overload Control component.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Priority 1 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component
<b>Measurement Scope</b>	Site

#### Recovery

- 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**.
- 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.
- 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.
- The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu > Alarms & Events**.
- If the problem persists, contact [My Oracle Support \(MOS\)](#).

### RxMsgsOCGreenPri2DiscardMp

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Green ingress Priority 2 messages discarded by the DA-MP Overload Control component.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Priority 2 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component
<b>Measurement Scope</b>	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 \(MOS\)](#).

### RxMsgsOCYellowPri2DiscardMp

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Yellow ingress Priority 2 messages discarded by the DA-MP Overload Control component.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Priority 2 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component
<b>Measurement Scope</b>	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 \(MOS\)](#).

### TmConnDegraded

<b>Measurement Group</b>	Diameter Exception
--------------------------	--------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Total time (in seconds) during the reporting period that the connection state was in the Degraded state.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for assistance if needed.</li> </ol>

### TmConnEnabledNotAvail

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Total time (in seconds) during the reporting period that the connection state was administratively enabled and the connection state was not Available.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Examine the Alarm History to determine if the connection is being rejected by either end, and for notification of local congestion.</li> <li>2. Make sure the peer is running.</li> <li>3. If the connection is configured as a Responder connection, make sure that the peer is attempting to initiate a connection.</li> <li>4. If the connection is an Initiator connection, make sure that the peer is listening on the configured port.</li> <li>5. Contact <a href="#">My Oracle Support (MOS)</a> for assistance if needed.</li> </ol>

**TxDtlsOversizedDiscard**

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of oversized egress messages discarded on the DTLS connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the message size to be sent on the DTLS connection is greater than 16K (16384) bytes.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TxReqMsgPerConnPtrMax**

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of times message routing bypassed the connection because the maximum allowed pending transactions was exceeded.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## TxRequestEgressLoop

<b>Measurement Group</b>	Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	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).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> 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.
<b>Measurement Scope</b>	Server Group

### Recovery

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 35: 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

Measurement Tag	Description	Collection Interval
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 for any reason other than those identified by other measurements.	5 min
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



Measurement Tag	Description	Collection Interval
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

<b>Measurement ID</b>	14067
<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Connection ID)
<b>Description</b>	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'.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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".  <b>Note:</b> The "connection measurement" is associated with the Diameter Connection from which the Request message was received.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action necessary

### RxDecodeFailure

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)

<b>Description</b>	Number of Request messages rejected from a downstream peer because the message could not be decoded.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxDOCDiscardMp**

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress messages that were discarded due to local DA-MP danger of CPU congestion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged for each message discarded due to DA-MP danger of CPU congestion.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## RxMessageLooping

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	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).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## RxNoRoutesFound

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Number of Request messages from a downstream peer rejected by a Local Node because no routes were available for routing the message.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• A Route List was selected via a Peer Routing Rule or implicit routing but its Operational Status was Unavailable</li> <li>• Implicit routing was invoked and the peer's Operational Status was not Available and an alternate implicit route was not provisioned for the peer</li> </ul>

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. 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxNoRulesFailure

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages from a downstream peer rejected by a Local Node because no Peer Routing Rule was found.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxPrtRuleRejection**

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	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".
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxRejectedAll**

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages rejected from a downstream peer by a Local Node (all reasons).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When measurement ID <i>RxRejectedConnCongestion</i> , <i>RxDecodeFailure</i> , <i>RxMessageLooping</i> , <i>RxAllDrop</i> , <i>RxNoRulesFailure</i> , <i>RxNoRoutesFound</i> , <i>RxTransactionTimeout</i> , <i>RxPrtRuleRejection</i> , or <i>RxRejectedOther</i> is pegged.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxRejectedOther**

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages from a downstream peer rejected by a Local Node for any reason other than those identified by measurements <i>RxDecodeFailure</i> , <i>RxMessageLooping</i> , <i>RxAllDrop</i> , <i>RxNoRulesFailure</i> , <i>RxNoRoutesFound</i> , <i>RxTransactionTimeout</i> , <i>RxArtRuleRejection</i> , or <i>RxPrtRuleRejection</i> .
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Request message from a downstream peer rejected by a Local Node for any reason other than those identified by measurements <i>RxDecodeFailure</i> , <i>RxMessageLooping</i> , <i>RxAllDrop</i> , <i>RxNoRulesFailure</i> , <i>RxNoRoutesFound</i> , <i>RxTransactionTimeout</i> , <i>RxArtRuleRejection</i> , or <i>RxPrtRuleRejection</i> .  The connection measurement is associated with the connection from which the Request message was received.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxRequestMsgQueueFullDiscard**

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress Diameter Request messages that were discarded because the Request Message Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxTransactionTimeout**

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages from a downstream peer rejected by a Local Node because maximum message reroutes are exceeded.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxLongTimeoutPtrListEmpty

<b>Measurement ID</b>	10296
<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress Diameter Request messages that were discarded because no Long Timeout PTR Buffers were available.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• A Long Timeout PTR Buffer shall be allocated from the Long Timeout PTR Buffer Pool</li> <li>• The count for the number of allocated Long Timeout PTRs from a Long Timeout PTR Buffer Pool shall be incremented by one.</li> </ul>
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple



<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress Diameter Request messages that were discarded because no PTR Buffers were available.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• A PTR Buffer shall be allocated from the PTR Buffer Pool</li> <li>• The count for the number of allocated PTRs from a PTR Buffer Pool shall be incremented by one.</li> </ul>
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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.</li> <li>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).</li> <li>3. Contact <a href="#">My Oracle Support (MOS)</a> for assistance if needed.</li> </ol>

### TxRerouteQueueFullReject

<b>Measurement Group</b>	Diameter Ingress Transaction Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of egress Diameter Request messages that were rejected because the Reroute Queue was full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>For each Request message rejected because the Reroute Queue was full.</p> <p>The connection measurement is associated with the connection the Request message was received from.</p>
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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.</li> </ol>

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. 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 36: 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
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**

<b>Measurement Group</b>	Diameter Ingress Transaction Performance, Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of routable Request messages received on the connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged when a Diameter request message is received from the peer.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TxAnswer1xxx**

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 1xxx.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TxAnswer2xxx**

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)

<b>Description</b>	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 2xxx.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TxAnswer3xxx

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 3xxx (Protocol Error).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TxAnswer4xxx

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 4xxx (Transient Failure).

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TxAnswer5xxx**

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 5xxx (Permanent Failure).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TxAnswerFailure**

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	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).  <b>Note:</b> An expected Answer response from a peer is an Answer response for which a pending transaction existed.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TxAnswerLocalNode

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Answer responses from a Local Node that were successfully routed to a downstream peer (all Result-Code values).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TxAnswerOther

<b>Measurement Group</b>	Diameter Ingress Transaction Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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 37: 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
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

Measurement Tag	Description	Collection Interval
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
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.



<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### EvPerConnPtrQueuePeak

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The maximum length of the PTR queue for a connection during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### EvRemoteBusy

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	
<b>Description</b>	Number of times that a connection's Remote Busy State changed from "Not Busy" to "Busy".
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that DRL changes the connection's "Remote Busy State" to "Busy".
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Use <b>Main Menu &gt; Diameter &gt; Configuration &gt; Connections</b> to examine and modify the "Remote Busy Abatement Timeout" attribute setting for the connection.</li> </ol>

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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### EvTransSuccessByExternalNode

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of transactions where an external node sends success (2xxx) Answer to Diameter Node.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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)
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### MpEvRadiusRoutedMsgs

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress RADIUS messages processed by DRL, including Rerouting and Message Copy.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement should be incremented as per the following conditions. <ul style="list-style-type: none"> <li>• Ingress RADIUS Request processing resulting in a Request being routed upstream (with or without local DSR application processing of the Request)</li> <li>• Ingress RADIUS Response processing resulting in forwarding of Answer/Response downstream (with or without local DSR application processing of the Response)</li> <li>• Ingress Request processing resulting in Answer message sent by DSR to originator (with or without local DSR application processing of the Request)</li> <li>• Ingress RADIUS Request discarded due to validation error or overload</li> </ul>

- 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**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of valid Answer messages received from an upstream peer that were successfully routed to a downstream peer.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	
	No action required.

**RxConnRequestMsgs**

<b>Measurement Group</b>	Diameter Ingress Transaction Performance, Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of routable Request messages received on the connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged when a Diameter request message is received from the peer.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	
	No action required.

**RxDiam2DiamTransactionsCount**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The total number of Diameter to Diameter transactions
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of transactions successfully processed on one routing attempt.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TmConnAvail**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Total time in seconds that the connection state was available during the measurement period.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegging started when the connection state is Available. Pegging stopped when the connection state is Unavailable or Degraded.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for assistance if needed.</li> </ol>

**TmHoldTimeDownstreamMp**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>• The time interval for each transaction starts when DRL allocates and stores PTR for an ingress Request message from a downstream peer</li> <li>• The time interval for each transaction when DRL stops processing and the transaction deallocates the PTR and sends an answer response to DCL</li> </ul> <p>This includes Answer messages received from an upstream peers and those generated by DRL.</p>
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TmRemoteBusy

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Total time (in milliseconds) that a connection's "Remote Busy State" was "Busy".
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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"
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmResponseTimeDownstream

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TmResponseTimeDownstreamMp**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TmResponseTimeUpstream**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Average time (in milliseconds) from when routing forwards a Request message to an upstream peer to the time that an Answer response is received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> 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).
<b>Measurement Scope</b>	Server Group

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxConnAnswerMsgs**

<b>Measurement Group</b>	Diameter Egress Transaction, Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of routable Answer messages successfully sent on the connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged when a Diameter Answer message is sent to the peer.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**TxConnRequestMsgs**

<b>Measurement Group</b>	Diameter Egress Transaction, Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of routable Request messages successfully sent on the connection.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Pegged when a Diameter request message is sent to the peer.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**TxRequestSuccessAllMP**

<b>Measurement Group</b>	Diameter Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Request messages successfully routed to a peer.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	When the DSR successfully queues a Request message. The connection measurement is associated with the connection to which the Request message was sent.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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 38: Diameter Rerouting Measurement Report Fields**

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

### RxRerouteAnswerRsp

<b>Measurement Group</b>	Diameter Rerouting
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of valid Answer messages received from an upstream peer that were associated with a pending rerouted transaction.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxRerouteAnswerRspMp

<b>Measurement Group</b>	Diameter Rerouting
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of valid Answer messages received from an upstream peer that were associated with a pending rerouted transaction.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### TxRerouteAnswerResponse

<b>Measurement Group</b>	Diameter Rerouting
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of message rerouting attempts triggered by the receipt of an Answer response Result-Code value that is a candidate for message rerouting.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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. 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxRerouteConnFailure**

<b>Measurement Group</b>	Diameter Rerouting
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of message rerouting attempts triggered by a connection failure.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Request message rerouting attempt invoked by the receipt of a valid Connection Down event notification from the DSR.
<b>Measurement Scope</b>	Server Group

**Recovery**

1. Connection status can be monitored from the **Diameter > Maintenance > Connections** page.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxRerouteSuccessSent**

<b>Measurement Group</b>	Diameter Rerouting
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of message rerouting attempts that were successfully rerouted.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DSR successfully reroutes a Request message. The connection measurement is associated with the upstream connection from which rerouting was triggered.
<b>Measurement Scope</b>	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
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



## TxDmiwfmtoDRoutingFail

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of MAP-to-Diameter transactions which could not be routed to the Diameter network due to a failure.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>Whenever DM-IWF is unable to successfully forward a Request message received from a SS7-MP due to a failure.</li> <li>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).</li> <li>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".</li> </ul>
<b>Measurement Scope</b>	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 [EvDmiwfpPtrPoolExceeded](#)
  - 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, contact [My Oracle Support \(MOS\)](#).

## TxDmiwfdtoMRoutingFail

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Number of Diameter-to-MAP transactions which could not be routed to a SS7-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Whenever DM-IWF is unable to successfully forward a Request message received from DRL to a SS7-MP due to a failure.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvDmiwfDtoMtimeout**

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Diameter-to-MAP transaction failures due to time-out on a DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each DM-IWF abandons a Diameter-to-MAP transaction due to a DM-IWF Pending Answer Timer expiration.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvDmiwfPtrPoolExceeded

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Transaction Direction)
<b>Description</b>	Number of transactions rejected - no PTRs
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF fails to allocate a PTR for either a Diameter-to-MAP or MAP-to-Diameter transaction.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### RxDmiwfSS7MPAnswerUnexpected

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Unexpected Answer messages received from SS7-MPs
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. 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, contact [My Oracle Support \(MOS\)](#).

**EvMdiwfError****Recovery**

If the problem persists, contact [My Oracle Support \(MOS\)](#).

**EvMdiwfConnExhausted**

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Message Type)
<b>Description</b>	Number of Diameter messages that could not be forwarded to MD-IWF (SS7-MP) due to failure to enqueue message to ComAgent.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Request forwarded to MD-IWF that received a ComAgent Error response
<b>Measurement Scope</b>	Site

**Recovery**

If the problem persists, contact [My Oracle Support \(MOS\)](#).

**RxDiscOnError**

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Arrayed (by Error Condition)
<b>Measurement Dimension</b>	Simple
<b>Description</b>	The number of Diameter messages that were discarded on error for the error conditions: <ul style="list-style-type: none"> <li>• 0: Encode decode error, D-to-M Request</li> <li>• 1: Encode decode error, D-to-M Answer</li> <li>• 2: Encode decode error, M-to-D Request</li> <li>• 3: Encode decode error, M-to-D Answer</li> </ul>
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Diameter message is discarded on error
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for further assistance.

**EvDmIwfTxFwdFail**

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Message Type)
<b>Description</b>	<p>Number of Diameter messages that could not be forwarded by DM-IWF to DRL due to DRL queue exhaustion</p> <p><b>Note:</b> 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 <i>DSR Alarms and KPIs Reference</i> for details about these alarms.</p>
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Any time DM-IWF fails to enqueue a Diameter message to DRL's Request or Answer Task
<b>Measurement Scope</b>	Site
<b>Recovery</b>	If the problem occurs frequently, contact <a href="#">My Oracle Support (MOS)</a> .

**EvDmiwfMsgSizeExceeded**

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Message Type - Request/Answer)
<b>Description</b>	Number of Diameter messages received from DRL that got rejected because the Diameter message size exceeded maximum "Diameter Max Message Size"
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF fails to forward a Diameter message to SS7-MP because its size exceeds the supported maximum
<b>Measurement Scope</b>	Site
<b>Recovery</b>	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**

<b>Measurement Group</b>	DM-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of interworking attempts that failed due to action initiated by DM-IWF (not due to far end).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**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

Measurement Tag	Description	Collection Interval
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
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

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Diameter-to-MAP transaction messages processed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>• When DM-IWF processes a Request message received from DRL.</li> <li>• When DM-IWF processes an Answer message received from an MD-IWF.</li> </ul>
	<p><b>Note:</b> 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).</p> <p><b>Note:</b> This measurement serves as baseline for calculating measurements <a href="#">RxDmiwfDtoMTransRateAvg</a> and <a href="#">RxDmiwfDtoMTransRatePeak</a>, as well as KPI Diameter-to-MAP Trans</p>

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. 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).



<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time measurement <i>RxDmiwfDtoMTransCnt</i> is sampled.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxDmiwfMtoDTransCnt

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of MAP-to-Diameter transaction messages processed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>• When DM-IWF processes a Request message received from an MD-IWF.</li> <li>• When DM-IWF processes an Answer message received from DRL.</li> </ul>
	<p><b>Note:</b> 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).</p>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxDmiwfMtoDTransRateAvg

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Avg
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>Average number of MAP-to-Diameter transaction messages processed per second.</p> <p><b>Note:</b> 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).</p>
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time measurement <i>RxDmiwfMtoDTransCnt</i> is sampled.
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**RxDmiwfMtoDTransRatePeak**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak number of MAP-to-Diameter transaction messages processed per second.  <b>Note:</b> 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).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time measurement <i>RxDmiwfMtoDTransCnt</i> is sampled.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxDmiwfTransactionRspQueuePeak**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Transaction Response Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxDmiwfTransactionRspQueueAvg**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Avg

<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Transaction Response Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	
<b>Recovery</b>	No action required.

### EvDmiwfPtrPoolPeak

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum DM-IWF PTR Pool utilization sample taken during the collection interval
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### EvDmiwfPtrPoolAvg

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Avg
<b>Measurement Dimension</b>	Single
<b>Description</b>	The DM-IWF PTR Buffer Pool Average Utilization
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	

No action required.

### **RxDmiwfRequestMessage**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Command Code)
<b>Description</b>	Number of Request messages with Command Code "X" received from DRL.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF processes a Request message received from DRL.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required.	

### **RxDmiwfAnswerMessage**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Command Code)
<b>Description</b>	Number of Answer messages with Command Code "X" received from DRL.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF processes an Answer message received from DRL.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required.	

### **TxDmiwfRequestMessage**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Command Code ID)
<b>Description</b>	Number of Request messages with Command Code "X" received from DRL.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TxDmiwfAnswerMessage**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Command Code)
<b>Description</b>	Number of Answer messages with Command Code "X" sent to from DRL.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF successfully enqueues an Answer message to DRL's Answer Queue.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxDmiwfRequestMessageIwf**

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages processed from an SS7-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF processes a request message received from an MD-IWF (SS7-MP).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxDmiwfAnswerMessageIwf**

<b>Measurement Group</b>	DM-IWF Performance
--------------------------	--------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Answer messages processed by DM-IWF that were received from an SS7-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF processes an Answer message received from an MD-IWF (SS7-MP).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxDmiwfRequestMessageIwf

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages sent to an SS7-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF sends a Request message to an MD-IWF (SS7-MP).
<b>Measurement Scope</b>	
<b>Recovery</b>	No action required.

### TxDmiwfAnswerMessageIwf

<b>Measurement Group</b>	DM-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Answer messages sent to an SS7-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time DM-IWF sends a Request message to an MD-IWF (SS7-MP).
<b>Measurement Scope</b>	
<b>Recovery</b>	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 39: 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
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

Measurement Tag	Description	Collection Interval
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**

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of messages (Request or Answer) send on a Connection or a Peer which is part of ETG .
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**TxEtgMsgRatePeak**

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Peak Aggregated ETG Message Rate calculation made during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required



**TxEtgMsgRateAvg**

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Avg
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Average ETG Message Rate calculation made during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an ETG Message Rate calculation $A_t$ is calculated.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**EvEtgRateCongestionOnset**

<b>Measurement ID</b>	14003
<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of times an ETG-RCL was advanced.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the EMR Congestion Level is advanced
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtgRateDiscardPri0**

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETG Rate Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtgRateDiscardPri1**

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtgRateDiscardPri2**

<b>Measurement ID</b>	14006
<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETG Rate Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvEtgPendingTransPeak

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Peak pending transactions to members of this ETG during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a new $P_t$ value exceeds any previous $P_{t-k}$ value.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

### EvEtgPendingTransAvg

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Avg
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Average pending transactions to members of this ETG during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an ETG Pending Request $P_t$ value is calculated.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

### EvEtgPendingTransCongestionOnset

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of times an ETG-PCL was advanced.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the ETG Window Congestion Level is advanced
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtgPendingTransDiscardPri0**

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETG Pending Transaction Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvEtgPendingTransDiscardPri1

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETG Pending Transaction Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvEtgPendingTransDiscardPri2

<b>Measurement Group</b>	Egress Throttle Group Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by ETG ID)
<b>Description</b>	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETG Pending Transaction Limited
<b>Measurement Scope</b>	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, 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 40: 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 ETL Request Message Rate calculation made during the collection interval.	5 min
EvEtlRateCongestionOnset	Number of times an ETL-RCL was 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

Measurement Tag	Description	Collection Interval
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
EvEtlPendingTransAvg	Average Pending transactions to this ETL during the collection interval.	5 min
EvEtlPendingTrans CongestionOnset	Number of times an ETL-PCL was 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

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Peak Aggregated ETL Request Message Rate calculation made during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required



**TxEtlMsgRateAvg**

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Avg
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Average ETL Request Message Rate calculation made during the collection interval
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an ETL Message Rate calculation $A_t$ is calculated.
<b>Measurement Scope</b>	Network
<b>Recovery</b>	No action required

**EvEtlRateCongestionOnset**

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of times an ETL-RCL was advanced.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the EMR Congestion Level is advanced
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtlRateDiscardPri0**

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETL Rate Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtlRateDiscardPri1**

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvEtlRateDiscardPri2

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETL Rate Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvEtlPendingTransPeak

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Peak pending transactions to members of this ETL during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Network
<b>Recovery</b>	No action required

### EvEtlPendingTransAvg

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Avg
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Average pending transactions to members of this ETL during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	An ETL Pending Request calculation $P_t$ 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.
<b>Measurement Scope</b>	Network
<b>Recovery</b>	No action required

**EvEtlPendingTransCongestionOnset**

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of times an ETL-PCL was advanced.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the ETL Window Congestion Level is advanced
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtlPendingTransDiscardPri0**

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETL Pending Transaction Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

### EvEtlPendingTransDiscardPri1

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETL Pending Transaction Limited
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvEtlPendingTransDiscardPri2**

<b>Measurement Group</b>	Egress Throttle List Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by ETL ID)
<b>Description</b>	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETL Pending Transaction Limited
<b>Measurement Scope</b>	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, 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 41: 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

Measurement Tag	Description	Collection Interval
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
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
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
RxFabrUnkAppId	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



<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	The number of request messages received containing IMSI of a Blacklisted subscriber
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the Routing Exception "BlackListed Subscriber" is invoked
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxFabrBlacklistedMsisdn

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	The number of request messages received containing MSISDN of Blacklisted subscriber
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the Routing Exception "BlackListed Subscriber" is invoked
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Validate which User identity address is not blacklisted by using DP configuration.</li> <li>2. If the problem persists, contact <a href="#">My Oracle Support (MOS)</a>.</li> </ol>

### RxFabrDecodeFailureResol

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages rejected due to a message decoding error.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance.

**RxFabrInvalidImsiMcc**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxFabrResolFailAll**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Total number of Request messages received which did not resolve a Destination address.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each Request message which did not resolve to a Destination address.
<b>Measurement Scope</b>	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.

**RxFabrResolFailCmdcode**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received with an unknown Command Code.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each routing exception where the (Application ID, Command Code) pair in the incoming Request message is not configured.
<b>Measurement Scope</b>	Server Group

**Recovery**

The currently provisioned Diameter Application IDs can be viewed in the FABR Configuration & Maintenance GUI.

Contact [My Oracle Support \(MOS\)](#) for assistance.

**RxFabrResolFailDpCongested**

<b>Measurement ID</b>	10669
<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Database queries that failed to be serviced due DP/ComAgent errors.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required

**RxFabrResolFailImpiMatch**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received for which IMPI was used for Destination address resolution, but no Destination address was found.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMPI.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Validate which destination address is associated with the user identity address by using DP GUI.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for assistance.</li> </ol>

### RxFabrResolFailImpuMatch

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received for which IMPU was used for Destination address resolution, but no Destination address was found.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMPU.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Validate which destination address is associated with the user identity address by using DP GUI.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for assistance.</li> </ol>

### RxFabrResolFailImsiMatch

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received for which IMSI was used for Destination address resolution, but no Destination address was found.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
- 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.
- Contact [My Oracle Support \(MOS\)](#) for assistance.

**RxFabrResolFailNoValidAddr**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received with at least Routing Entity Address AVP but no valid Routing Entity Addresses were found.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each routing exception with no valid User Identity address found and the number of AVPs searched for the message was greater than 0.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**RxFabrSrvNotiDpComAgentErrors**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Diameter Application)
<b>Description</b>	Number of failed Database queries received in the service notifications from Com Agent indicating DP/COM Agent errors.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When FABR receives a service notification from Communication Agent indicating a DP/Communication Agent error.
<b>Measurement Scope</b>	MP

**Recovery**

No action necessary.

**RxFabrTransactionsRejected**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Number of transactions rejected by FABR.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the RBAR application sends an answer response with Result-Code/Experimental-Code or abandons an ingress request message.
<b>Measurement Scope</b>	Server Group

**Recovery**

1. When non-zero, examine other failure measurements ([RxFabrUnkAppId](#), [RxFabrDecodeFailureResol](#), [RxFabrResolFailAll](#), [RxFabrResolFailCmdcode](#), [RxFabrResolFailNoAddrAvps](#), [TxFabrDbConFail](#), [TxFabrAbandonRequest](#), [RxFabrInvalidImsiMcc](#), [RxFabrBlacklistedImsi](#), [RxFabrBlacklistedMsisdn](#)) to isolate reasons for failures.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

**RxFabrUnkAppId**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages rejected due to an unknown Application ID.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each routing exception when the Application ID is not valid.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**TxFabrDbConFail**

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of database queries failed due to the Communication Agent queue exhaustion.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time the application attempts to send DP queries and fails due to Communication Agent queue exhaustion.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance.

## TxFabrFwdFail

<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of routing attempt failures due to internal resource exhaustion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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).
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> 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 42: 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



Measurement Tag	Description	Collection Interval
RxFabrBundledResponseEvents	The number of Bundled Response Events received by FABR.	5 min
RxFabrDpResponseMsgQueueAvg	The average DP Response Message Queue utilization (0-100%) measured during the collection interval.	5 min
RxFabrDpResponseMsgQueuePeak	The peak DSR Application's DP Response Message Queue utilization (0-100%) measured during the collection interval.	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
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**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average number of queries per Bundle sent by FABR.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When FABR successfully sends a Bundled query event to ComAgent for processing
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxDpResponseTimeAvg**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average time (in milliseconds) it takes to receive a DP response after sending the correlated database query.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	It is calculated based on the total number of sampled database queries during the collection interval.
<b>Measurement Scope</b>	MP
<b>Recovery</b>	No action necessary.

**RxFabrAvgMsgSize**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Average size of Request message received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Average calculated for each Request message received.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	

No action necessary.

### RxFabrBundledResponseEvents

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Bundled Response Events received by FABR.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When FABR successfully receives a Bundled response event from ComAgent.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxFabrDpResponseMsgQueueAvg

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average DP Response Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Request Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	This alarm may occur due to persistent overload conditions with respect to database response processing. Contact <a href="#">My Oracle Support (MOS)</a> for assistance.

### RxFabrDpResponseMsgQueuePeak

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	The peak DSR Application's DP Response Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum DP Response Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Server Group

**Recovery**

This alarm may occur due to persistent overload conditions with respect to database response processing.

Contact [My Oracle Support \(MOS\)](#) for assistance.

**RxFabrMsgs**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request messages received by FABR application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message successfully de-queued from the application's internal "Message Event" queue.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action necessary.

**RxFabrResolAll**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successfully Resolved to a Destination.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message successfully resolved to a Destination.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action necessary.

**RxFabrResolAllMp**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Addresses Successfully Resolved to a Destination by the MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message successfully resolved to a Destination by the MP.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action necessary.

**RxFabrResolImpi**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type IMPI.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message successfully resolved to a Destination using a Routing Entity Type of IMPI.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action necessary.

**RxFabrResolImpu**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Addresses Successful Resolved with Routing Entity type IMPU.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The “average per second” is periodically calculated based on the total number of addresses successfully resolved.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxFabrResolRatePeak

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak Addresses Successfully Resolved per second.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	At the end of each sample period associated with average successfully resolved message rate, as defined by measurement <a href="#">RxFabrResolRateAvg</a> , if the value exceeds the current value for this measurement, then the measurement will be updated with the current sample periods value.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxFabrSrvNotiDpCongest

<b>Measurement ID</b>	10647
<b>Measurement Group</b>	Full Address Resolution Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Service Notifications received from ComAgent indicating DP is congested with CL=2 or CL=3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When FABR receives Service Notification from ComAgent indicating a DP congestion at CL=2 or CL=3.
<b>Measurement Scope</b>	MP
<b>Recovery</b>	No action necessary.

**TxFabrAbandonRequest**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request message that are abandoned.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the Routing Exception “Abandon Request” is invoked.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action necessary.

**TxFabrBundledQueryEvents**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Bundled Query Events sent to ComAgent.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When FABR successfully sends a Bundled query event to ComAgent for processing.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**TxFabrFwdDefaultDest**

<b>Measurement Group</b>	Full Address Resolution Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Application ID)
<b>Description</b>	Number of Request message forwarding attempts using a Default Destination.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### TxFabrMsgAttempt

**Measurement Group** Full Address Resolution Performance

**Measurement Type** Simple

**Measurement Dimension** Arrayed (by Diameter Application ID)

<b>Description</b>	Number of Request message forwarding attempts (all reasons).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the application attempts to enqueue a Request message on the DSR Relay Agent's "Request Message Queue".
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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 43: 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

<b>Measurement Group</b>	GLA Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of GGRs unsuccessfully processed due to unsupported Application ID, Command Code, Subscriber Info, or other decoding issue.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	During GGR failure handling
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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, contact [My Oracle Support \(MOS\)](#).

## RxGlaDatabaseFailures

<b>Measurement Group</b>	GLA Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of GGRs unsuccessfully processed due to queries to pSBR-B receiving a negative acknowledgment.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	During pSBR-B query failures
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## RxGlaDatabaseTimeouts

<b>Measurement Group</b>	GLA Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of GGRs unsuccessfully processed due to queries to pSBR-B timing out before a response is received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	During pSBR-B query failures
<b>Measurement Scope</b>	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, 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 44: 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

<b>Measurement Group</b>	GLA Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of GGRs successfully processed
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a GGA is transmitted following a successful query of the pSBR database
<b>Measurement Scope</b>	Server Group

#### Recovery

This number can be compared against [RxGlaRequestProcessed](#) to get a ratio of total input Requests to successfully processed Requests.

**RxGlaResponseMsgQueuePeak**

<b>Measurement Group</b>	GLA Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak utilization of GLA's response queue that handles pSBR-B replies.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Reception of a response Stack Event from pSBR-B.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxGlaResponseMsgQueueAvg**

<b>Measurement Group</b>	GLA Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average utilization of GLA's response queue that handles pSBR-B replies.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Reception of a response Stack Event from pSBR-B.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**TxGlaSuccessMsgRatePeak**

<b>Measurement Group</b>	GLA Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak rate of GGRs successfully processed

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a GGA is transmitted following a successful query of the pSBR database
<b>Measurement Scope</b>	Server Group

**Recovery**

1. This number provides an indication of peak success work-rate of GLA. It can be used to determine when GLA is processing more than a customer's work-rate.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

**TxGlaSuccessMsgRateAvg**

<b>Measurement Group</b>	GLA Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average rate of GGRs successfully processed
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a GGA is transmitted following a successful query of the pSBR database
<b>Measurement Scope</b>	Server Group

**Recovery**

1. This number provides an indication of sustained success work-rate of GLA. It can be used to determine when GLA is processing more than a customer's work-rate.
2. If the problem persists, 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, 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

Measurement Tag	Description	Collection Interval
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
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

<b>Measurement Group</b>	IDIH
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of TTRs that were sent from DSR to DIH.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a TTR is successfully transmitted from DSR to DIH.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

### EvIdihNumTtrsDeliveryFailed

<b>Measurement Group</b>	IDIH
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of TTRs that could not be sent from DSR to DIH due to the failure of the ComAgent link.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a TTR cannot be successfully transmitted from DSR to DIH.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	

Re-establish the ComAgent link to DIH.

### **TmIdihTraceSuspendedTime**

<b>Measurement Group</b>	IDIH
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Single
<b>Description</b>	The amount of time that trace limiting is active
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time trace limiting is activated and stopped when trace limiting is de-activated.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required	

### **TmIdihTraceThrottlingTime**

<b>Measurement Group</b>	IDIH
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Single
<b>Description</b>	The amount of time that trace throttling is active.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time trace throttling is activated and stopped when trace throttling is de-activated.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action required	

### **EvIdihThrottlingTtrsDiscarded**

<b>Measurement Group</b>	IDIH
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of TTRs discarded due to trace throttling.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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, 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 45: 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
TsaUnexpectedSctp	Number of SCTP packets sent to a TSA configured as "TCP Only".	5 min
TsaUnexpectedTcp	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

<b>Measurement Group</b>	IPFE Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented by one each time the IPFE drops an ARP/ICMP/ICMPv6 control packet.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. In the unlikely event that counts should appear for this measurement, network diagnostics should be performed.</li> <li>2. For further assistance, contact <a href="#">My Oracle Support (MOS)</a>.</li> </ol>

**ThrottledPackets**

<b>Measurement Group</b>	IPFE Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of packets dropped due to throttling
<b>Collection Interval</b>	5 min, 30 min, 60 min
<b>Peg Condition</b>	When a packet is dropped to limit excessive IPFE CPU
<b>Measurement Scope</b>	Network
<b>Recovery</b>	Increase DSR Capacity.

**TsaBadDestPortSctp**

<b>Measurement Group</b>	IPFE Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TSA ID)
<b>Description</b>	The number of packets received that had a destination port outside of the responder port range and the initiator port range.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	Incremented when a packet that has an out-of-range destination port is received
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	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**

<b>Measurement Group</b>	IPFE Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TSA ID)
<b>Description</b>	The number of packets received that had a destination port outside of the responder port range and the initiator port range.
<b>Collection Interval</b>	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

<b>Measurement Dimension</b>	Arrayed (by TSA ID)
<b>Description</b>	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 <i>DSR Alarms and KPIs Reference</i> for details about this alarm), will also be issued.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time the IPFE rejects a new association for a target set address.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	Check the status of the application servers by navigating to the <b>Status &amp; Manage &gt; Server</b> page.

### TxRejectSctp

<b>Measurement Group</b>	IPFE Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	New SCTP associations rejected.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	Incremented when an SCTP association is rejected.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	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 46: 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

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Server ID)
<b>Description</b>	New associations for each server.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time the IPFE associates a client packet with an application server.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

### AsNewAssociationsSctp

<b>Measurement Group</b>	IPFE Performance
--------------------------	------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Server ID)
<b>Description</b>	New SCTP associations for each server.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	Incremented when a new SCTP association is established for an application server.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

### IpfeNewAssociations

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	New associations for the IPFE.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time the IPFE associates a client packet with an application server.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

### IpfeNewAssociationsSctp

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	New SCTP associations for the IPFE
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	Incremented when a new SCTP association is established through an IPFE.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	None required

**RxIpfeBytes**

<b>Measurement Group</b>	Simple
<b>Measurement Type</b>	IPFE Performance
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of bytes received by the IPFE.
<b>Collection Interval</b>	5 minutes, 30 minutes, 60 minutes
<b>Peg Condition</b>	The measurement is incremented by one for each byte the IPFE receives.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	
No action required	

**RxIpfeBytesSctp**

<b>Measurement ID</b>	5223
<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of SCTP bytes received by the IPFE.
<b>Collection Interval</b>	5 minutes, 30 minutes, 60 minutes
<b>Peg Condition</b>	Incremented by the packet payload size when an SCTP packet is received by the IPFE.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	
No action required	

**RxIpfePackets**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Packets received by the IPFE
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one for each packet the IPFE receives.
<b>Measurement Scope</b>	Network, NE, Server Group



**Recovery**

No action required

**RxTsaBytes**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TSA ID)
<b>Description</b>	Bytes received for each TSA.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time a byte is received for a particular target set address.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	
	No action required

**RxTsaBytesSctp**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TSA ID)
<b>Description</b>	SCTP bytes received for each TSA
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time an SCTP byte is received for a particular target set address.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	
	No action required

**RxTsaPackets**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TSA ID)
<b>Description</b>	Packets received for each TSA
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	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

<b>Peg Condition</b>	Incremented when a new SCTP association is established for a TSA.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

**TxAsBytes**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Bytes sent for each server.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time a byte is sent to a particular application server.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

**TxAsBytesSctp**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TSA ID)
<b>Description</b>	SCTP bytes sent for each server.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time an SCTP byte is sent to a particular application server.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

**TxAsPackets**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Server ID)
<b>Description</b>	Packets sent for each server.

<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time a packet is sent to a particular application server.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

**TxAsPacketsSctp**

<b>Measurement Group</b>	IPFE Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Application Server ID)
<b>Description</b>	SCTP packets sent for each server.
<b>Collection Interval</b>	5 minutes
<b>Peg Condition</b>	This measurement is incremented by one each time an SCTP packet is sent to a particular application server.
<b>Measurement Scope</b>	Network, NE, Server Group
<b>Recovery</b>	No action required

**Link Exception measurements**

Table 47: 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
RxLnkUnsollInactAck	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 <b>Enabled</b> , 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

<b>Measurement Group</b>	Link Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxLnkUnsolInactAck

<b>Measurement Group</b>	Link Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link)

<b>Description</b>	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 <b>Enabled</b> , 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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an unsolicited ASP-INACTIVE-ACK is received on the link.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxLnkM3uaERROR**

<b>Measurement Group</b>	Link Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	The number of times an M3UA ERROR message was received for the link. M3UA ERROR message are sent to indicate invalid M3UA signaling.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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).
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxLnkInvalidM3ua

<b>Measurement Group</b>	Link Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	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).
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an invalid M3UA message is received for the link.
<b>Measurement Scope</b>	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. 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 48: 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

<b>Measurement Group</b>	Link Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	The number of MSUs sent on the link, including all M3UA messages, both DATA and non-DATA.  <b>Note:</b> ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an M3UA message is sent on the link.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required

## RxLnkMSU

<b>Measurement Group</b>	Link Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an M3UA message is received on the link.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.



**TxLnkMSUOctets**

<b>Measurement Group</b>	Link Performance
<b>Measurement Type</b>	Arrayed (per link)
<b>Measurement Dimension</b>	Simple
<b>Description</b>	The number of MSU octets sent on the link, including all M3UA messages, both DATA and non-DATA.  <b>Note:</b> ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

**RxLnkMSUOctets**

<b>Measurement Group</b>	Link Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

## Link Set Performance measurements

Table 49: 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

<b>Measurement Group</b>	Link Set Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link set)
<b>Description</b>	The number of MSUs sent on the link set , including all M3UA DATA messages sent on all links in the link set.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an M3UA DATA message is sent on a link in the link set.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

### RxLnkSetMSU

<b>Measurement Group</b>	Link Set Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link set)

<b>Description</b>	The number of MSUs sent on the link set, including all M3UA DATA messages received on all links in the link set.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an M3UA DATA message is received on a link in the link set.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

### TxLnkSetMSUOctets

<b>Measurement Group</b>	Link Set Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link set)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

### RxLnkSetMSUOctets

<b>Measurement Group</b>	Link Set Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per link set)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	

No action required.

## Link Set Usage measurements

Table 50: 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

<b>Measurement Group</b>	Link Set Usage
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (by Linkset)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	<p>M3RL must maintain an accurate time and measurement of the number of seconds during the collection period that the Link Set's state is <b>Unavailable</b>. This measurement is associated with the duration (in seconds) that Alarm 19202 - Link Set Unavailable (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) is asserted during the collection period.</p> <p>Start of duration measurement for Link Set "X" criteria:</p> <ol style="list-style-type: none"> <li>1. Alarm 19202 is asserted for Link Set "X."</li> <li>2. Start of new collection period AND Alarm 19202 for Linkset "X" is already asserted (during a previous collection interval).</li> </ol> <p>Stop of duration measurement for Link Set "X" criteria:</p> <ol style="list-style-type: none"> <li>1. Alarm 19202 for Linkset "X" is cleared (i.e, Link Set becomes <b>Available</b>).</li> <li>2. End of collection interval.</li> </ol>

#### Measurement Scope

#### Recovery

This value provides a measure of the availability of a Link Set. No action required.

## Link Usage measurements

Table 51: 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 <b>Disabled</b> 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: <ul style="list-style-type: none"> <li>• Maintenance activity: link is <b>Disabled</b> or the link's association is <b>Disabled</b> or <b>Blocked</b>.</li> <li>• Failure of the link to receive ASP-ACTIVE-ACK.</li> <li>• Receipt of unsolicited ASP-INACTIVE-ACK from the SG.</li> <li>• A link's association is not in the <b>Normal</b> status: failed to establish SCTP connection, failed to receive ASP-UP-ACK, received unsolicited ASP-DOWN-ACK.</li> </ul>	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 <b>Normal</b> . 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 <b>Enabled</b> to <b>Disabled</b> .	30 min

### TmLnkMOOS

<b>Measurement Group</b>	Link Usage
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	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 <b>Disabled</b> 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmLnkAvailable

<b>Measurement Group</b>	Link Usage
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (per link)
<b>Description</b>	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 <b>Normal</b> . An in-service link is available for M3UA DATA signaling.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Time is accumulated for this measurement when the link status reason is <b>Normal</b> .
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvLnkManClose

<b>Measurement Group</b>	Link Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	
<b>Description</b>	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 <b>Enabled</b> to <b>Disabled</b>
<b>Collection Interval</b>	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. 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 52: 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
RxMdIwfDiamAnswerUnexpectedDaMp	MD-IWF received Diameter Answer from unexpected DA-MP	5 min



Measurement Tag	Description	Collection Interval
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
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
EvMdIwfInterwrkFailFarEndResponse	Number of interworking attempts that failed due to error response received from far end	5 min
EvMdIwfInterwrkFailDsrInitiated	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
EvMdIwfTransRejectByDiamExtNode	Number of transactions where Diameter external node sends non-2xxx Answer to DSR, and MD-IWF sends error response to SS7	5 min

### TxMdIwfSs7TransmitFailure

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	The number of outgoing SS7 messages to the SS7 network that could not be routed (e.g. queue full).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance if this measurement is being pegged frequently.

### RxMdIwfOrphanMapResponse

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of orphan MAP Response messages received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the MD-IWF Application received a MAP response message for which no Pending Transaction record exists.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### EvMdIwfMapResponseTimeout

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Single
<b>Measurement Dimension</b>	Simple
<b>Description</b>	The number of timeouts waiting for MAP Response.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the MD-IWF Application sent a MAP request message to the SS7 network, but timed out waiting for the MAP response
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxMdIwfDiamNon2xxxAnswer**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Non-2xxx Answers received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a Diameter Answer message from a DA-MP where the result-Code value is non-2xxx
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) if this measurement is being pegged frequently.

**RxMdIwfOrphanDiamAnswer**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of orphan Diameter Answer messages received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a Diameter Answer message for which no Pending Transaction record exists
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**EvMdIwfDiamAnswerTimeout**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of timeouts following message sent to DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time D-IWF sends a Diameter Request message to the DA-MP, but times out waiting for the Diameter Answer
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxMdIwfDiamAnswerUnexpectedDaMp**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Answer messages received from unexpected DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives Diameter Answer from an unexpected DA-MP.
<b>Measurement Scope</b>	Site

**Recovery**

This error is not expected to occur. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxMdIwfFailComAgentEnqueue**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	The number of times MD-IWF failed to enqueue a Diameter message to ComAgent.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF attempts to send a Diameter message to a DA-MP via ComAgent, but is unable to enqueue the message.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance if this measurement is being pegged frequently.

### RxMdIwfComAgentError

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Request messages sent to DA-MP that results in ComAgent error / timeout or in DM-IWF NACK
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMdIwfDiamPduPoolEmpty

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages discarded when Diameter PDU pool is exhausted.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF discards a message due to Diameter PDU pool exhaustion
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance if this measurement is being pegged frequently.

**EvMdIwfInterwrkFail**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The total number of interworking attempts that failed for any reason (internal or because of something from the far end).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an interworking attempt by MD-IWF fails.  <b>Note:</b> 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.  <b>Note:</b> 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.
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**EvMdIwfInterwrkFailAddrTrans**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of interworking attempts that failed while attempting Address Translation (either Map-to-Diameter or Diameter-to-Map).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a failure occurs when MD-IWF attempts to perform address translation.  <b>Note:</b> Address Translation involves converting between Diameter addresses (i.e. Orig- and Dest- Host & Realm) and SS7 addresses (i.e. CgPa, CdPa, OPC, DPC).
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**EvMdIwfInterwrkFailMsgTrans**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Single
<b>Measurement Dimension</b>	Simple
<b>Description</b>	The number of interworking attempts that failed while attempting message translation.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a failure occurs when MD-IWF attempts to perform message translation.  <b>Note:</b> Message Translation involves mapping between AVPs in a Diameter message and parameters in a MAP message.
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**TxMdIwfDiamEdlEncodeFailure**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of times an EDL failure occurred while MD-IWF attempted to encode a Diameter message
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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 <i>DSR Alarms and KPIs Reference</i> for details about this event) will be raised when this condition occurs.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**EvMdIwfInterwrkFailCongest**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of interworking attempts that failed due to MD-IWF Congestion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an interworking attempt by MD-IWF fails due to MD-IWF congestion.  <b>Note:</b> 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.
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**EvMdIwfInterwrkFailFarEndResponse**

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Single
<b>Measurement Dimension</b>	Simple
<b>Description</b>	Number of interworking attempts that failed due to error response received from far end
<b>Collection Interval</b>	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.  <b>Note:</b> An interworking attempt is defined in <a href="#">EvMdIwfInterwrkAttempt</a>
<b>Peg Condition</b>	5 min
<b>Measurement Scope</b>	Site

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**EvMdIwfInterwrkFailDsrInitiated**

<b>Measurement Group</b>	MD-IWF Exception
--------------------------	------------------



<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of interworking attempts that failed due to action initiated by MD-IWF (not due to far end)
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> An interworking attempt is defined in <a href="#">EvMdiwfInterwrkAttempt</a> .
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance if this measurement is being pegged frequently.

### EvMdiwfInterwrkFailSysError

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Single
<b>Measurement Dimension</b>	Simple
<b>Description</b>	The number of interworking attempts that failed due to internal processing error.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an interworking attempt by MD-IWF fails due to internal processing error.  <b>Note:</b> 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.  <b>Note:</b> Examples of internal processing errors are ComAgent error, ComAgent congestion, and resource exhaustion.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance if this measurement is being pegged frequently.

### EvMdiwfMessageFailResExh

<b>Measurement Group</b>	MD-IWF Exception
--------------------------	------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times a message could not be processed due to resource exhaustion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a message cannot be processed by MD-IWF due to resource exhaustion.  <b>Note:</b> Examples of resource exhaustion are PTR exhaustion, PDU exhaustion, and queue full.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance if this measurement is being pegged frequently.

### EvMdiwfTransRejectByDiamExtNode

<b>Measurement Group</b>	MD-IWF Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of transactions where Diameter external node sends non-2xxx Answer to DSR, and MD-IWF sends error response to SS7
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	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 53: 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
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

Measurement Tag	Description	Collection Interval
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
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

Measurement Tag	Description	Collection Interval
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

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP messages received from the SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a MAP message from the SS7 network. This includes both request and response messages.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TxMdIwfSS7Msg

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP messages sent to SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF sends a MAP message to the SS7 network. This includes both request and response messages.
<b>Measurement Scope</b>	Site

**Recovery**

No action required.

**RxMdIwfMapRequestMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP request messages received from SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a MAP request message from the SS7 network.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
	No action required

**TxMdIwfMapRequestMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP request messages to SS7 network
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF sends a MAP request message to the SS7 network
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
	No action required.

**RxMdIwfMapResponseMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP response messages received from SS7 network.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time MD-IWF receives a MAP response message from the SS7 network
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxMdIwfMapResponseMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP response messages sent to SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **RxMdIwfDiamMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter messages from DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a Diameter message from a DA-MP. This includes both Request and Answer messages.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxMdIwfDiamMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter successfully sent to DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF sends a Diameter message to a DA-MP. This includes both Request and Answer messages.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMdIwfDiamRequestMsg

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Request messages received from DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a Diameter Request message from a DA-MP.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMdIwfDiamAnswerMsg

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Answer messages received from DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a Diameter Answer message from a DA-MP.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.



**TxDmIwfDiamRequestMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Request messages sent to DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF sends a Diameter Request message to a DA-MP
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TxDmIwfDiamAnswerMsg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Answer messages sent to DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF sends a Diameter Answer message to a DA-MP.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**EvMdiwfInterwrkAttempt**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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
<b>Collection Interval</b>	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

<b>Description</b>	The total number of messages received by MD-IWF, including MAP messages received from the SS7 network and Diameter messages received from DA-MPs.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> This measurement serves as a baseline for calculating measurements <a href="#">RxMdIwfIngressMsgRateAvg</a> and <a href="#">RxMdIwfIngressMsgRatePeak</a> as well as KPI Ingress Message Rate (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMdIwfIngressMsgRateAvg

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average MD-IWF ingress message rate, including MAP messages received from SS7 network and Diameter messages received from DA-MPs.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time KPI Ingress Message Rate (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI) samples <a href="#">RxMdIwfIngressMsgCount</a> .
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMdIwfIngressMsgRatePeak

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak MD-IWF ingress message rate, including MAP messages received from SS7 network and Diameter messages received from DA-MPs.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time KPI Ingress Message Rate (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI) samples <a href="#">RxMdlwfIngressMsgCount</a> .
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMap2DiamTransMsgCount

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The total number of MAP-to-Diameter transaction messages by MD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> 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.  <b>Note:</b> This measurement serves as a baseline for calculating measurements <a href="#">RxMap2DiamTransMsgRateAvg</a> and <a href="#">RxMap2DiamTransMsgRatePeak</a> as well as KPI MAP-to-Diameter Ingress Msg Rate found in KPI MAP-to-Diameter Trans Msg Rate (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMap2DiamTransMsgRateAvg

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average MAP-to-Diameter transaction messages rate.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time KPI MAP-to-Diameter Trans Msg Rate (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI) samples <a href="#">RxMap2DiamTransMsgCount</a> .
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMap2DiamTransMsgRatePeak

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak MAP-to-Diameter transaction messages rate.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time KPI MAP-to-Diameter Trans Msg Rate (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI) samples <a href="#">RxMap2DiamTransMsgCount</a> .
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxDiam2MapTransMsgCount

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The total number of Diameter-to-MAP transaction messages received by MD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> 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.  <b>Note:</b> This measurement serves as a baseline for calculating measurements <a href="#">RxDiam2MapTransMsgRateAvg</a> and <a href="#">RxDiam2MapTransMsgRatePeak</a> 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

<b>Measurement Dimension</b>	Arrayed (by Task ID)
<b>Description</b>	The peak DiamTrans Task Message Queue utilization.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each DiamTrans task, this peg represents the maximum DiamTrans Task Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMdIwfDiamTransMsgQueueAvg

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Task ID)
<b>Description</b>	The average DiamTrans Task Message Queue utilization.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each DiamTrans task, this peg represents the average DiamTrans Task Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxMdIwfMapTransMsgQueuePeak

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by Task ID)
<b>Description</b>	The peak MapTrans Task Message Queue utilization.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each MapTrans task, this peg represents the maximum MapTrans Task Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxMdIwfMapTransMsgQueueAvg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Task ID)
<b>Description</b>	The average MapTrans Task Message Queue utilization.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each MapTrans task, this peg represents the average MapTrans Task Message Queue utilization sample taken during the collection interval
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxMdIwfDampInterfaceMsgQueuePeak**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak DampInterface Task Message Queue utilization.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg represents the maximum DAMPInterface Task Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxMdIwfDampInterfaceMsgQueueAvg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average DampInterface Task Message Queue utilization.
<b>Collection Interval</b>	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

<b>Description</b>	The peak MapToDiam PTR utilization.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg represents the maximum MapToDiam PTR utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**EvMdIwfMap2DiamPtrUtilAvg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Single
<b>Measurement Dimension</b>	Average
<b>Description</b>	The average MapToDiam PTR utilization.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg represents the average MapToDiam PTR utilization sample taken during the collection interval.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**TmMdIwfMap2DiamPtrHoldTimeAvg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average hold time (in milliseconds) of MAP-to-Diameter transactions processed by MD-IWF
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**TmMdIwfDiam2MapPtrHoldTimeAvg**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average hold time (in milliseconds) of Diameter-to-MAP transactions processed by MD-IWF
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**RxMdIwfMapTcBegin**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of TCAP Begin requests received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a TCAP Begin message from the SS7 network.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**EvMdIwfTransSuccessByDiamExtNode**

<b>Measurement Group</b>	MD-IWF Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of transactions where Diameter external node sends success (2xxx) Answer to DSR, and MD-IWF sends success response to SS7
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	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 54: 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

<b>Measurement Group</b>	MD-IWF SS7 Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by MAP Op Code)
<b>Description</b>	The number of MAP request messages with Op Code "X" received from SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a MAP request message from the SS7 network
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxMdIwfMapResponseMsgByOpcode**

<b>Measurement Group</b>	MD-IWF SS7 Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by MAP Op Code)
<b>Description</b>	The number of MAP response messages with Op Code "X" received from SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a MAP response message from the SS7 network
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TxMdIwfMapRequestMsgByOpcode**

<b>Measurement Group</b>	MD-IWF SS7 Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by MAP Op Code)
<b>Description</b>	The number of MAP request messages with Op Code "X" received from SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a MAP request message from the SS7 network
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TxMdIwfMapResponseMsgByOpcode**

<b>Measurement Group</b>	MD-IWF SS7 Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by MAP Op Code)
<b>Description</b>	The number of MAP response messages with Op Code "X" received from SS7 network.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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 55: 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

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Command Code ID)
<b>Description</b>	The number of Diameter Request messages with Command Code "X" received from DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF receives a Diameter Request message from a DA-MP.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxDmIwfDiamRequestMsgByCommandCode**

<b>Measurement Group</b>	MD-IWF Diam Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Command Code ID)
<b>Description</b>	The number of Diameter Request messages with Command Code "X" sent to DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF sends a Diameter Request message to a DA-MP.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxDmIwfDiamAnswerMsgByCommandCode**

<b>Measurement Group</b>	MD-IWF Diam Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Command Code ID)
<b>Description</b>	The number of Diameter Answer messages with Command Code "X" sent to DA-MP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MD-IWF sends a Diameter Answer message to a DA-MP.
<b>Measurement Scope</b>	
<b>Recovery</b>	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 56: 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 no peer for the application ID in the message.	5 min
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



Measurement Tag	Description	Collection Interval
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

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The total number of DAS Copy Answers received.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time an Answer response is received from a DAS peer.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.
	This measurement is an indication of the Message Copy response traffic load being processed by the MP.

### DASCopyDiscarded

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Total number of Message Copy failures because of any error (no Answer received, the result code in the Answer didn't match provisioning).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**DASCopyFailureMCCSNotProvisioned**

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Total amount of DAS Copy failures due to the copied message not finding a provisioned MCCS.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group

**Recovery**

1. Verify the MCCS configured with the trigger points and ensure proper provisioning.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

**DASCopyFailureMPCong**

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Total number of DAS Copy Failures because the MP was congested.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Reduce traffic being received by the MP.</li> <li>2. Verify there are no network issues between the MP and the intended DAS peer.</li> <li>3. Ensure the intended DAS peer has sufficient capacity to process the traffic being directed to it by the MP</li> <li>4. Contact <a href="#">My Oracle Support (MOS)</a> for assistance.</li> </ol>

### DASCopyFailurePeerApplIdUnsup

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Verify the route list provisioning points to the intended DAS peer, and the intended DAS peer is responding with the desired Application ID.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for assistance.</li> </ol>

### DASCopyFailureSizeExceeded

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	Total amount of DAS Copy failures due to the copied message size exceeding the maximum message size configured for the system.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Verify the maximum message size set system wide is sufficient for handling the messages being processed.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for assistance.</li> </ol>

### DASCopyFailureRLNotProv

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Total number of DAS Copy Failures because the route list is not provisioned.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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).</li> <li>2. Review DAS peer provisioning to insure proper configuration.</li> <li>3. Contact <a href="#">My Oracle Support (MOS)</a> for assistance.</li> </ol>

### DASCopyRetransmits

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Total number of DAS Copy retransmits.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**DASCopyRetransmitsExceeded**

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Total number of times the DAS Copy retransmits exceeded the configured max number of retransmits.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**DASCopyTx**

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	The total number of DAS Copies forwarded.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time a Message Copy is transmitted to a DAS peer.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

This measurement is an indication of the Message Copy traffic load being processed by the MP.

**DASCopyValidAnswer**

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The total number of DAS Copy transactions completed (a Copy Pending Transaction has been paired with a qualified Answer from the DAS peer).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

**TxMsgCopyQueueAve**

<b>Measurement Group</b>	DAS
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Message Copy Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	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 57: 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
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



<b>Peg Condition</b>	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
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxMsgPri0PeerRule

<b>Measurement ID</b>	10028
<b>Measurement Group</b>	Message Priority
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages set to priority "0" as a result of PRT processing.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action necessary.

### RxMsgPri1ApplRule

<b>Measurement Group</b>	Message Priority
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages set to priority "1" as a result of ART processing
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	

No action required.

### RxMsgPri1PeerRule

<b>Measurement ID</b>	10029
<b>Measurement Group</b>	Message Priority
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages set to priority "1" as a result of PRT processing.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action necessary.

### RxMsgPri2ApplRule

<b>Measurement Group</b>	Message Priority
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages set to priority "2" as a result of ART processing
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### RxMsgPri2PeerRule

<b>Measurement ID</b>	10033
<b>Measurement Group</b>	Message Priority

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Request messages set to priority "2" as a result of PRT processing.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action necessary.

## Message Processor (MP) Performance measurements

The MP Performance measurement report contains measurements that provide performance information for an MP server.

**Table 58: 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
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

Measurement Tag	Description	Collection Interval
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

<b>Measurement ID</b>	10295
<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	The average of all Diameter Long Timeout PTR Buffer Pool utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvLongTimeoutPtrPoolPeak**

<b>Measurement ID</b>	10294
<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>The peak Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval.</p> <p>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.</p>
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Diameter Long Timeout PTR Buffer Pool utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## EvMpCongestionLevel1Entered

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times that the local DA-MP entered CPU congestion level 1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time Alarm 22200 - Local MP Congestion (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) transitions from "cleared" or asserted with severity "Info" to asserted with severity "Minor".
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## EvMpCongestionLevel2Entered

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times that the local DA-MP entered CPU congestion level 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time Alarm 22200 - Local MP Congestion (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) transitions from "cleared" or asserted with severity "Info" or "Minor" to asserted with severity "Major".
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvMpCongestionLevel3Entered**

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times that the local DA-MP entered CPU congestion level 3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time Alarm 22200 - Local MP Congestion (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) transitions from "cleared" or asserted with severity "Info", "Minor", or "Major" to asserted with severity "Critical".
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**EvPtrListAvg**

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Diameter PTR Buffer Pool utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact *My Oracle Support (MOS)* for assistance if needed.

**EvPtrListPeak**

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>The peak Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval.</p> <p>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.</p>
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Diameter PTR Buffer Pool utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. 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**

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Answer Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Answer Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxAnswerMsgQueuePeak**

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak Answer Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Answer Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxRequestMsgQueueAvg**

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Request Message Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxRequestMsgQueuePeak**

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak Request Message Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Request Message Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. 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, 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, 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, contact [My Oracle Support \(MOS\)](#).

## TxRerouteQueueAvg

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Reroute Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Reroute Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## TxRerouteQueuePeak

<b>Measurement Group</b>	MP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak Reroute Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Reroute Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## OAM.ALARM measurements

Table 59: 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 60: 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	5 minutes



Measurement Tag	Description	Collection Interval
	can exceed 100% if the kernel has committed more resources than provided by physical RAM, in which case, swapping will occur.	
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
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 61: 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
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

<b>Measurement Group</b>	OC-DRA Diameter Usage
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average OC-DRA Ingress Message Processing Rate
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all OC-DRA Ingress Message Rate KPI samples taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## RxOcdraMsgRatePeak

<b>Measurement Group</b>	OC-DRA Diameter Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak OC-DRA Ingress Message Processing Rate
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum of all OC-DRA Ingress Message Rate KPI samples taken during the collection interval.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

## RxGyRoMsgsReceivedPerCmd

<b>Measurement Group</b>	OC-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	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")
<b>Description</b>	The number of Gy/Ro Diameter Credit Control Application messages (including requests and answers) received by OC-DRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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 <a href="#">RxGyRoReqRelayedPerCmd</a> and <a href="#">RxGyRoReqFailedToRelayPerCmd</a> 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 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".

**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

<b>Measurement Dimension</b>	Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and "Total")
<b>Description</b>	The number of Gy/Ro Diameter Credit Control Application Answer messages successfully relayed by OC-DRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### RxGyRoAns2xxxFromPeerPerCmd

<b>Measurement Group</b>	OC-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and "Total")
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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).  <b>Note:</b> This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### TmGyRoSessionDuration

<b>Measurement Group</b>	OC-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of normally terminated Gy/Ro session durations.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Gy/Ro session record is removed, the appropriate histogram instance shall be incremented by 1.  <b>Note:</b> Binding-independent session records are stored only if session state applies to the session.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	OC-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of Gy/Ro session refresh durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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 62: 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
RxGyRoAnsDiscardedDrlQueueFullPerCmd	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	5 min

Measurement Tag	Description	Collection Interval
	after encountering a failure and abandoning processing of Gy/Ro Diameter Credit Control Application Request messages.	
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 OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
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	5 min



Measurement Tag	Description	Collection Interval
	failure and generated an Answer response.	
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 received by OC-DRA that did not contain the CC-Request-Type AVP.	5 min
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	5 min

Measurement Tag	Description	Collection Interval
	OC-DRA without a Destination-Host.	
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

<b>Measurement Group</b>	P-DRA Diameter Exception, OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of transactions rejected by Policy and Charging DSR Application.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Request discarded during Congestion</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> </ul> <p><b>Note:</b> This measurement is only pegged once for an ingress Request message.</p>
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Request Command Abbreviation, i.e., CCR-I/U/T/E, RAR, UNK-REQ and "Total")
<b>Description</b>	The number of Gy/Ro Diameter Credit Control Application Request messages OC-DRA failed to relay.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• OC-DRA functionality is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Request discarded during Congestion</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> <li>• Diameter Routing Layer failed to relay the Diameter Request (e.g., an unavailable peer or invalid route specification)</li> </ul> <p><b>Note:</b> This measurement is only pegged once for an ingress Request message.</p>
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR and "Total")
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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).
	<b>Note:</b> This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### RxGyRoAnsDiscardedDrlQueueFullPerCmd

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ, and "Total")
<b>Description</b>	The number of Gy/Ro Diameter Credit Control Application Answer messages discarded by OC-DRA due to DRL's Answer queue being full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Gy/Ro based Diameter Credit Control Application Answer message is discarded after OC-DRA failed to enqueue it on to DRL's Answer queue for routing due to it being full.
	<b>Note:</b> 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxGyRoAnsGenByDrlPerCmd

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ, and "Total")
<b>Description</b>	The number of Gy/Ro Diameter Credit Control Application Answer messages received by OC-DRA that were generated by DRL.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total."
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### TxGyRoAnsGenByOcdraPerCmd

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (i.e. CCR-I/U/T/E, RAR, UNK-REQ, and "Total")
<b>Description</b>	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.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> </ul> <p><b>Note:</b> This measurement is only pegged once for an ingress Request message.</p>
----------------------	--

**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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by 3-digit error code defined in <a href="#">Policy DRA Error Resolution Procedures</a> and "Total")
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> </ul>

**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 INITIAL\_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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by 3-digit error code defined in <i>Policy DRA Error Resolution Procedures</i> )
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> </ul>
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple



<b>Measurement Dimension</b>	Arrayed (by 3-digit error code defined in <a href="#">Policy DRA Error Resolution Procedures</a> )
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> </ul>
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by 3-digit error code defined in <a href="#">Policy DRA Error Resolution Procedures</a> )
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
2. 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.
3. 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**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by 3-digit error code defined in <a href="#">Policy DRA Error Resolution Procedures</a> )
<b>Description</b>	The number of Gy/Ro Re-Auth-Request (RAR) messages that OC-DRA abandoned processing due to a failure and generated an Answer response.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> </ul>

**Measurement Scope** All

#### Recovery

- 1.
2. This 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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by 3-digit error code defined in <a href="#">Policy DRA Error Resolution Procedures</a> )
<b>Description</b>	The number of unsupported Diameter Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> </ul>
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by 3-digit error code defined in <a href="#">Policy DRA Error Resolution Procedures</a> and "Total")
<b>Description</b>	The number of Diameter Request messages that PCA abandoned processing due to a failure and generated an Answer response.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• A PCA function is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> </ul> <p><b>Note:</b> This measurement is pegged twice, once for the 3-digit error code and once for "Total."</p>
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Answer messages relayed by PCA containing an Application-Id AVP value that is not supported.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time PCA receives a Diameter Answer message containing an Application-Id value that is not supported and forwards it to DRL for routing.
<b>Measurement Scope</b>	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. Contact the [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxOcdraReqNoCcRequestType

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Gy/Ro Credit-Control-Request messages received by OC-DRA that did not contain the CC-Request-Type AVP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time OC-DRA receives a Gy/Ro Credit-Control-Request message that does not contain the CC-Request-Type AVP.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Gy/Ro Credit-Control-Request/Answer messages received by OC-DRA that contained an unsupported CC-Request-Type AVP value.
<b>Collection Interval</b>	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**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of SBR Stack Events discarded by OC-DRA that contained an unsupported Event Type value.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time OC-DRA discards a stack event received from the SBR that contained an unsupported Event Type value.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxGyRoCcrInitNoMsisdn**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	All

**Recovery**

- 1.
2. 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.
3. If session state is stored for this transaction, the MSISDN will be stored as “Not Present”.

**RxGyRoCcrInitNoDestHostMultOcsPoolMode**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Gy/Ro CCR-I messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxGyRoCcrEventNoDestHostMultOcsPoolMode**

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Gy/Ro CCR-E messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxGyRoInSessionReqNoDestHost

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of in-session Gy/Ro Diameter Credit Control Application Request messages received by OC-DRA without a Destination-Host.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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).
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time OC-DRA receives a Gy/Ro Diameter Answer message from the peer with a Result-Code value 5002 (DIAMETER_UNKNOWN_SESSION_ID).
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of answering OCS servers not configured locally.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time OC-DRA receives a session initiation answer from an OCS server whose FQDN is not configured at the Policy and Charging SOAMP
<b>Measurement Scope</b>	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. 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 63: 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

<b>Measurement Group</b>	OC-DRA Congestion Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, and "Total")
<b>Description</b>	The number of Gy/Ro Diameter Credit Control Application Request messages discarded due to congestion.
<b>Collection Interval</b>	
<b>Peg Condition</b>	Each time a Gy/Ro Diameter Credit Control Application Request message is discarded due to congestion.  <b>Note:</b> This measurement is pegged twice, once for the 3-digit error code and once for "Total".
<b>Measurement Scope</b>	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

## 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 64: 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
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

Measurement Tag	Description	Collection Interval
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
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

Measurement Tag	Description	Collection Interval
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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of CCR Initial messages received by PDRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time the application receives a CCR Initial message.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### RxPdraCcrUpdateMsgs

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of CCR Update messages received by PDRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time the application receives a CCR Update message.
<b>Measurement Scope</b>	All

**Recovery**

No action necessary.

**RxPdraCcrTerminateMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of CCR Termination messages received by PDRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time the application receives a CCR Termination message.
<b>Measurement Scope</b>	All
<b>Recovery</b>	
	No action necessary.

**RxCcrInitNoImsiMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of CCR Initial messages without IMSI.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time P-DRA processes a CCR Initial message in which IMSI is not present.
<b>Measurement Scope</b>	All
<b>Recovery</b>	
	No action necessary.

**RxPdraRarGxMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of RAR messages received by PDRA for Gx interface.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	The measurement shall be incremented each time the application receives a RAR message for Gx interface.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**RxPdraRarRxMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of RAR messages received by PDRA for Rx interface.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time the application receives a RAR message for Rx interface.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**RxPdraAarMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of AAR messages received by PDRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time the application receives an AAR message.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**RxPdraStrMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single



<b>Description</b>	Number of STR messages received by PDRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented per interface each time the application receives a STR message.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### **PdraGxTopoHidingApplied**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of messages received on Gx interface on which topology hiding has been applied by P-DRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time topology hiding is applied when a message from Gx interface is processed by the application.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### **PdraRxTopoHidingApplied**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of messages received on Rx interface on which topology hiding has been applied by P-DRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time topology hiding is applied when a message from Rx interface is processed by the application.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**RxPdraMsgRateAvg**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	Average Diameter ingress message processing rate of P-DRA during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is periodically updated based on average rate of the Diameter ingress messages being processed by P-DRA calculated over the collection interval.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**RxPdraMsgRatePeak**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	Peak Diameter ingress message processing rate of P-DRA during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is periodically updated based on maximum rate of the Diameter ingress messages being processed by P-DRA calculated over the collection interval.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**RxPdra5002FromPcrf**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of 5002 DIAMETER_UNKNOWN_SESSION_ID responses received from a PCRF
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	This peg is incremented by one each time a PCRF responds to a Diameter request with a 5002 response code.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### RxPdra5002FromPolicyClient

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of 5002 DIAMETER_UNKNOWN_SESSION_ID responses received from a policy client.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time a policy client responds to a Diameter request with a 5002 response code.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### TxPdraGxRarRelease

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	All
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. Check <b>Alarms &amp; Events &gt; View History GUI</b> for pSBR Event 22711 - Policy SBR Database Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event) for more details about the possible cause of the error.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for support as needed.</li> </ol>

**RxPdraGxpCcrInitMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Gx-Prime CCR Initial messages processed by P-DRA against binding key priorities.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Gx-Prime CCR-I message is processed by P-DRA.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

**RxPdraGxpCcrUpdateMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Gx-Prime CCR Update messages received by P-DRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the P-DRA Application receives a Gx-Prime CCR Update message.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

**RxPdraGxpCcrTerminateMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Gx-Prime CCR Termination messages received by P-DRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Gx-Prime RAR messages processed by P-DRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a Gx-Prime RAR message is processed by P-DRA.
<b>Measurement Scope</b>	All

**Recovery**

No action required.

**RxBindCapApn2PcrfPool**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by APN)
<b>Description</b>	The number of times a given APN is successfully mapped to PCRF pool.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**RxBindCap2PcrfSubPool**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by PCRF Sub-Pool Selection Rule)
<b>Description</b>	The number of binding capable session initiation requests that were mapped to a PCRF Sub-Pool by a given PCRF Sub-Pool Selection Rule.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**RxBindCapPcrfPool2Prt**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by PCRF Pool or Sub-Pool)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**RxPdraAsrMsgs**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	Number of ASR messages received by PDRA.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented each time the application receives an ASR message.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### TxPdraGxRarQuery

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Gx RAR messages initiated by P-DRA for the purposes of querying for session existence at the policy client.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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 <b>Policy DRA &gt; Configuration &gt; Access Point Names</b> if the session is associated with a configured APN, or <b>Policy DRA &gt; Configuration &gt; Network-Wide Options</b> if the session is not associated with an APN, or associated with an APN that is not configured.</li> <li>2. If the problem persists, contact <a href="#">My Oracle Support (MOS)</a>.</li> </ol>

### TmImsiBindingDuration

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of IMSI binding durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of normally terminated Gx session durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Gx session record is removed, the appropriate histogram instance shall be incremented by 1.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of Gx session refresh durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Gx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gx sessions are refreshed during RAA processing.
<b>Measurement Scope</b>	Network, Place Association, Resource Domain

#### Recovery

This measurement shows a histogram of Gx 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 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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of normally terminated Gxx session durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Gxx session record is removed, the appropriate histogram instance shall be incremented by 1.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of Gxx session refresh durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Gxx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gxx sessions are refreshed during RAA processing.
<b>Measurement Scope</b>	Network, Place Association, Resource Domain

**Recovery**

This measurement shows a histogram of Gxx 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 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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of normally terminated Rx session durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When an Rx session record is removed, the appropriate histogram instance shall be incremented by 1.  <b>Note:</b> Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of Rx session refresh durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of normally terminated Gx-Prime session durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When a Gx-Prime session record is removed, the appropriate histogram instance shall be incremented by 1.
	<b>Note:</b> Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of Gx-Prime session refresh durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed

<b>Description</b>	Histogram of normally terminated S9 session durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When an S9 session record is removed, the appropriate histogram instance shall be incremented by 1.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	Histogram of S9 session refresh durations.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When an S9 session record is refreshed, the appropriate histogram instance shall be incremented by 1. S9 sessions are refreshed during RAA processing.
<b>Measurement Scope</b>	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 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.

## 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 65: P-DRA Diameter Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
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 a non-specific binding correlation key (i.e., IMSI or MSISDN), but containing no APN.	5 min
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



Measurement Tag	Description	Collection Interval
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
TxStxMsgDiscardedDueToDrlQueueFull	Number of STR/STA messages discarded by P-DRA due to DRL queue being full.	5 min

### RxBindCapPcrfPoolNotMapped

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**RxBindCapMissingApn**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of binding capable session initiation requests containing no APN.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a binding capable session initiation request is received containing no APN (i.e. no Called-Station-ID AVP).  <b>Note:</b> This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) to be asserted.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**RxBindCapUnknownApn**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of binding capable session initiation requests containing an unconfigured APN.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a binding capable session initiation request is received containing an APN that is not configured at the Policy DRA NOAMP.  <b>Note:</b> This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) to be asserted.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**RxBindDepUnknownApn**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> This condition also causes Alarm 22730 - Policy DRA Configuration Error to be asserted. Refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

### RxBindDepMissingApn

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) to be asserted.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

### RxBindCapUnknownPcrf

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of binding capable session initiation answers coming from an unconfigured PCRF.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	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.  <b>Note:</b> This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) to be asserted.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**RxPcaRARRouteLocalFailure**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times the locally generated RAR has been failed to be routed out.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	P-DRA Diameter Exception, OC-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of transactions rejected by Policy and Charging DSR Application.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• OC-DRA is Unavailable or Disabled</li> <li>• Diameter Protocol Error Detected</li> <li>• OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing</li> <li>• Diameter Request discarded during Congestion</li> <li>• Diameter Message Routing failure due to DRL's Request Queue Full</li> <li>• Communication Agent Error (i.e., Queue Full)</li> <li>• Unexpected SBR Error</li> <li>• Online Charging Session not found when required for routing</li> </ul> <p><b>Note:</b> This measurement is only pegged once for an ingress Request message.</p>
<b>Measurement Scope</b>	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.

**RxPdaraRequestProtocolErr**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time an invalid diameter request message is received by P-DRA.

**Measurement Scope** All

**Recovery**

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, 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**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of ASR messages discarded by P-DRA due to DRL queue being full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time a ASR message is discarded by the application because DRL queue is full.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

**TxCcxMsgDiscardedDueToDrlQueueFull**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of CCR/CCA messages discarded by P-DRA due to DRL queue being full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time a CCR/CCA message is discarded by the application because DRL queue is full.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

**TxGxpCcxMsgDiscardedDrlQueueFull**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Gx-Prime CCR/CCA messages discarded by P-DRA due to DRL queue being full.
<b>Collection Interval</b>	5 min



<b>Peg Condition</b>	Each time a Gx-Prime CCR/CCA message is discarded by the P-DRA application because DRL queue is full.
<b>Measurement Scope</b>	All
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> .

## TxDraAnswersGeneratedConfigErr

<b>Measurement ID</b>	11311
<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Diameter Answers generated by P-DRA due to configuration errors when processing session initiation requests.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is pegged each time when P-DRA generates an error Answer in processing a session initiation request due to <ul style="list-style-type: none"> <li>• No PCRF being configured at the site where the request is processed OR</li> <li>• No PCRF ID being found in PCRF table OR</li> <li>• The APN contained in the request message not configured.</li> </ul> <p>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 the 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.</p> <p><b>Note:</b> 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.</p>
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#) for further assistance.

### TxDraAnswersGeneratedForDiameterErr

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Diameter answers generated by P-DRA due to error in received Diameter messages from DRL.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• Diameter protocol errors</li> <li>• P-DRA application specific errors due to absence of some optional AVP(s) in the Diameter request</li> </ul>
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### TxDraAnswersGeneratedForPsbrErrResp

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Diameter Answer messages generated by P-DRA because of pSBR stack event error response.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### **TxDraErrAnsGeneratedCAFailure**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of Diameter answers generated by P-DRA due to ComAgent failure.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time a diameter answer message is generated by P-DRA due to comagent routing failure.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### **TxRaxMsgDiscardedDueToDrlQueueFull**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of RAR/RAA messages discarded by P-DRA due to DRL queue being full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

**TxStxMsgDiscardedDueToDrlQueueFull**

<b>Measurement Group</b>	P-DRA Diameter Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of STR/STA messages discarded by P-DRA due to DRL queue being full.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time a STR/STA message is discarded by the application because DRL queue is full.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

**P-DRA Congestion Exception measurements**

The P-DRA Congestion Exception measurement report contains measurements that provide performance information that is specific to the P-DRA Diameter protocol.

**Table 66: P-DRA Congestion Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxAarMsgDiscardedDueToCongestion	Number of AAR messages discarded by P-DRA due to congestion.	5 min
RxAsrMsgDiscardedDueToCongestion	Number of ASR messages discarded by P-DRA due to P-DRA congestion.	5 min
RxCcrMsgDiscardedDueToCongestion	Number of CCR messages 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 RAR messages discarded by P-DRA due to congestion.	5 min
RxStrMsgDiscardedDueToCongestion	Number of STR messages discarded by P-DRA due to congestion.	5 min

**RxCcrMsgDiscardedDueToCongestion**

<b>Measurement Group</b>	P-DRA Congestion Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of CCR messages discarded by P-DRA due to congestion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time a CCR message is discarded by P-DRA due to congestion.
<b>Measurement Scope</b>	All
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance.

**RxRarMsgDiscardedDueToCongestion**

<b>Measurement Group</b>	P-DRA Congestion Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of RAR messages discarded by P-DRA due to congestion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time an RAR message is discarded by P-DRA due to congestion.
<b>Measurement Scope</b>	Network, NE, Server
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance.

**RxAarMsgDiscardedDueToCongestion**

<b>Measurement Group</b>	P-DRA Congestion Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of AAR messages discarded by P-DRA due to congestion.
<b>Collection Interval</b>	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**

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**

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**

Contact [My Oracle Support \(MOS\)](#) for assistance.

### RxAsrMsgDiscardedDueToCongestion

**Measurement Group** P-DRA Congestion Exception

**Measurement Type** Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of ASR messages discarded by P-DRA due to P-DRA congestion.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The measurement shall be incremented by one each time an ASR message is discarded by P-DRA due to congestion.
<b>Measurement Scope</b>	All
<b>Recovery</b>	Contact <a href="#">My Oracle Support (MOS)</a> for assistance.

## P-DRA Site Diameter Usage measurements

The P-DRA Diameter Usage measurement report contains measurements that provide performance information that is specific to the P-DRA Diameter protocol.

**Table 67: P-DRA Diameter Usage Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxSuspectBindingRuleMatchIncrCount	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
RxSuspectBindingRuleMatchRmvImt	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

<b>Measurement Group</b>	P-DRA Diameter Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Suspect Binding Removal Rule ID)
<b>Description</b>	The number of times a Suspect Binding Removal Rule matched to a supported Diameter message and the Rule is not configured as "Remove Immediately."
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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 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 68: 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**

<b>Measurement Group</b>	Peer Node Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Node ID)
<b>Description</b>	The number of Diameter AVPs deleted by an AVP Removal List.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxPeerAnswers**

<b>Measurement Group</b>	Peer Node Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Node ID)
<b>Description</b>	Number of routable Answer messages received from Peer-X.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL receives an Answer message event from DCL with a valid Transport Connection ID owned by Peer-X.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxPeerRequests**

<b>Measurement Group</b>	Peer Node Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Node ID)
<b>Description</b>	Number of routable Request messages received from Peer-X.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	When DRL receives a Request message event from DCL with a valid Transport Connection ID owned by Peer-X.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### **TxPeerAnswers**

<b>Measurement Group</b>	Peer Node Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Node ID)
<b>Description</b>	Number of routable Answer messages sent to Peer-X.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL successfully queues an Answer message for Peer-X to DCL.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### **TxPeerRequests**

<b>Measurement Group</b>	Peer Node Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Node ID)
<b>Description</b>	Number of routable Request messages sent to Peer-X.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When DRL successfully queues a Request message for Peer-X to DCL.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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 69: 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
RxRuleFwdFailActionSendAns	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
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 M CCS and marked for Message Copy	5 min

**RxPrtSelected**

<b>Measurement Group</b>	Peer Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (PRT ID)
<b>Description</b>	Number of times that a peer routing rule from PRT-X was selected for routing a Request message.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DRL selects a peer routing rule from PRT-X for routing a message.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxRuleDuplicatePriority**

<b>Measurement Group</b>	Peer Routing Rules
--------------------------	--------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Routing Rule ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**RxRuleFwdFailActionSendAns**

<b>Measurement Group</b>	Peer Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Routing Rule ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DSR selects a Peer Routing Rule to route a Request message and the Peer Routing Rule's action is Send Answer.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**RxRuleFwdFailAll**

<b>Measurement Group</b>	Peer Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Routing Rule ID)
<b>Description</b>	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".
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>When the DSR selects a Peer Routing Rule to route a Request message and one of the following conditions are met:</p> <ol style="list-style-type: none"> <li>1. The Peer Routing Rule's action is Send Answer.</li> <li>2. The Route List associated with the Peer Routing Rule has an Operational Status of Unavailable.</li> <li>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) .</li> </ol> <p>The Route List measurement is associated with the Route List selected for routing.</p>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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 <b>Diameter &gt; Configuration &gt; Peer Routing Rules</b> page.</li> <li>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 <b>Diameter &gt; Configuration &gt; Peer Routing Rules</b> page.</li> </ol>

**RxRuleSelected**

<b>Measurement Group</b>	Peer Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Routing Rule ID)
<b>Description</b>	The number of times that the Peer Routing Rule was selected for routing a Request message.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DSR selects a Peer Routing Rule for routing a message.
<b>Measurement Scope</b>	Server Group

**Recovery**

No action required.

**TxMsgPrtMarkedForCpy**

<b>Measurement ID</b>	14013
<b>Measurement Group</b>	Peer Routing Rules
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Peer Routing Rule ID)
<b>Description</b>	The number of Request messages set to a valid MCCS and marked for Message Copy
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	

**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 70: 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

Measurement Tag	Description	Collection Interval
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**

<b>Measurement Group</b>	RD-IWF
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages received by the RD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time the RD-IWF is invoked for any message.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxIwfReceivedDEA**

<b>Measurement Group</b>	RD-IWF
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DEA messages received by the RD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time the RD-IWF is invoked for the DEA.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**RxIwfReceivedRadiusAccessReq**

<b>Measurement Group</b>	RD-IWF
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DERs with embedded RADIUS Access-Request messages received by the RD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time the RD-IWF is invoked for the DER with the embedded RADIUS Access-Request message.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxIwfConvertedDER**

<b>Measurement Group</b>	RD-IWF
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of DER messages successfully converted by the RD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time the DER message is successfully converted by the RD-IWF.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxIwfGenRadiusAccessAccept**

<b>Measurement Group</b>	RD-IWF
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Access-Accept messages generated by the RD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time the Access-Accept message is generated by the RD-IWF based on the DEA.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	



No action required.

### **TxIwfGenRadiusAccessChallenge**

<b>Measurement Group</b>	RD-IWF
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Access-Challenge messages generated by the RD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time the Access-Challenge message is generated by the RD-IWF based on the DEA.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### **TxIwfGenRadiusAccessReject**

<b>Measurement Group</b>	RD-IWF
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Access-Reject messages generated by the RD-IWF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented each time the Access-Reject message is generated by the RD-IWF based on the DEA.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	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 71: 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 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** Server Group

### Recovery

1. Check the Route List settings using the **Diameter > Configuration > Route Lists** page.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxRouteListSelected**

<b>Measurement Group</b>	Route List
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Route List ID)
<b>Description</b>	Number of times that Route List was selected for routing a Request message.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DSR selects a Route List for routing a message. The Route List measurement is associated with the Route List selected for routing.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

**RxRouteListUnavailable**

<b>Measurement Group</b>	Route List
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Route List ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. The operation status of the Route List should be verified using the <b>Diameter &gt; Maintenance &gt; Route Lists</b> page.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a> for assistance if needed.</li> </ol>

**TmRouteListOutage**

<b>Measurement Group</b>	Route List
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Arrayed (by Route List ID)
<b>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.</b>	<b>Description</b>
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>The time duration interval starts when one of the following conditions occurs:</p> <ol style="list-style-type: none"> <li>1. A new collection interval for the measurement begins and Alarm 22053 - Route List Unavailable (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) is asserted.</li> <li>2. Alarm 22053 - Route List Unavailable (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) is asserted.</li> </ol> <p>The time duration interval stops when one of the following conditions occurs:</p> <ol style="list-style-type: none"> <li>1. The current collection interval for the measurement ends and Alarm 22053 - Route List Unavailable (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) is asserted.</li> <li>2. Alarm 22053 - Route List Unavailable (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm) is cleared.</li> </ol> <p>When a time duration interval completes, the time measured is added to the total measurement value.</p>

**Measurement Scope**

**Recovery**

1. The operation status of the Route List should be verified using the **Diameter > Maintenance > Route Lists** page.
2. 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 72: 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

Measurement Tag	Description	Collection Interval
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

<b>Measurement Group</b>	Routing Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages routed via Destination-Realm Implicit Routing.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### RxRoutedIntraMPAttempt

<b>Measurement Group</b>	Routing Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of attempts to route an ingress request message via intra-MP routing.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	

No action required.

### **RxRoutedPeerDirect**

<b>Measurement Group</b>	Routing Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages implicitly routed directly to a peer.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### **RxRoutedPeerRouteList**

<b>Measurement Group</b>	Routing Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages implicitly routed to a peer via its alternate implicit route.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	No action required.

### **RxRoutedPrt**

<b>Measurement Group</b>	Routing Usage
--------------------------	---------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of Request messages routed using Peer Routing Rules.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Server Group
<b>Recovery</b>	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 73: 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
SbrMsidnAuditDbErr	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

Measurement Tag	Description	Collection Interval
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
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



Measurement Tag	Description	Collection Interval
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
SbrAcceleratedMigrationSessionsTargeted	Number of binding capable sessions scheduled for removal due to Accelerated Migration.	5 min
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

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of binding-capable sessions scheduled for removal due to Accelerated Migration.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented during SBR audits of the ImsiApnAnchorKey and Session tables: <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>
<b>Measurement Scope</b>	Network, Place Association, Resource Domain
<b>Recovery</b>	No action required.

### SbrImsiAuditDbErr

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ImsiAnchorKey audit failures due to DB errors
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever an ImsiAnchorKey audit fails due to a DB error.
<b>Measurement Scope</b>	All
<b>Recovery</b>	

No action necessary.

### **SbrMsidnAuditDbErr**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MsidnAlternateKey audit failures due to DB error.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever a MsidnAlternateKey audit fails due to DB error.
<b>Measurement Scope</b>	All
<b>Recovery</b>	
No action necessary.	

### **SbrIpv4AuditDbErr**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Ipv4AlternateKey audit failures due to DB error.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever a Ipv4AlternateKey audit fails due to a DB error.
<b>Measurement Scope</b>	All
<b>Recovery</b>	
No action necessary.	

### **SbrIpv6AuditDbErr**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Ipv6AlternateKey audit failures due to DB error.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	This peg is updated whenever a Ipv6AlternateKey audit fails due to a DB error.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrSessionRecsAudited**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Session Records audited during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time a Session record is audited.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrExpiredSessionsFound**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Expired Session Records found by audit during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time a Session record is audited and found to be stale.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrImsiRecsAudited**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of IMSI Anchor Key Records audited during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time an ImsiAnchorKey record is audited.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrStaleSessionRemoved

<b>Measurement ID</b>	10865
<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of stale session records that are terminated by audit.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Every time a session record is audited that finds a time out.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrIpv4RecsAudited

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of IPv4 Alternate Key Records audited during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time an Ipv4AlternateKey record is audited.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrIpv4RecsRemoved**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of IPv4 Alternate Key Records removed by audit during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time an Ipv4AlternateKey record is removed by audit.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrIpv6RecsAudited**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of IPv6 Alternate Key Records audited during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time an Ipv6AlternateKey record is audited.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrSessionAuditDbErr**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Session audit failures due to DB error.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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, contact [My Oracle Support \(MOS\)](#) for assistance.

### SbrMsisdnAuditCaErr

**Measurement Group** SBR Audit



<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated when a MsidnAlternateKey audit fails due to a ComAgent error.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#) for assistance.

**SbrIpv4AuditCaErr**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever a Ipv4AlternateKey audit fails due to ComAgent error.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#) for assistance.

**SbrIpv6AuditCaErr**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever a Ipv6AlternateKey audit fails due to ComAgent error.
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#) for assistance.

**SbrIpv6RecsRemoved**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of IPv6 Alternate Key Records removed by audit during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is incremented by one each time an Ipv6AlternateKey record is removed by audit.
<b>Measurement Scope</b>	All

**Recovery**

No action necessary.

**SbrMsisdnRecsAudited**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MSISDN Alternate Key Records audited during the reporting interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Description</b>	A count of the number of IMSI binding sessionRefs removed by the binding audit.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the binding audit decides to remove an IMSI binding sessionRef due the following conditions: <ul style="list-style-type: none"> <li>• PCRF Pooling is Enabled AND <ul style="list-style-type: none"> <li>• The binding sessionRef has been in the database for at least 30 seconds AND</li> <li>• The binding sessionRef has no corresponding session in the session database</li> </ul> </li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**SbrMsisdnSrRemovedByAudit**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	A count of the number of MSISDN binding sessionRefs removed by the binding audit.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the binding audit decides to remove an MSISDN sessionRef because the binding sessionRef has no corresponding session in the session database.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**SbrOcSessionsAudited**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Online Charging sessions audited.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an Online Charging session record is audited.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrOcSessionsRemovedByAudit**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Online Charging sessions that were removed by an audit.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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).
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**SbrAcceleratedMigrationSessionsTargeted**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of binding capable sessions scheduled for removal due to Accelerated Migration.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented during SBR audits of the ImsiApnAnchorKey and Session tables as follows: <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	SBR Audit
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Binding Audit stack events sent to Session servers.
<b>Collection Interval</b>	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 74: 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
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	5 min



Measurement Tag	Description	Collection Interval
	from P-DRA and send back the stack event response to P-DRA	
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
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
EvSuspectBindingEventCountReset	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

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per APN)
<b>Description</b>	The number of times the maximum allowed bound session limit per APN was exceeded for a given APN.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	<p>This measurement is incremented by one each time the maximum allowed binding-capable session limit per APN is exceeded for a given APN:</p> <p><b>Note:</b> 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.</p> <p><b>Note:</b> This measurement takes precedence over <a href="#">MaxSessionPerImsiExceeded</a> when max sessions per APN is configured to 10.</p>
----------------------	--

**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

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of new bindings created.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever a new binding is created.
<b>Measurement Scope</b>	Place Association

#### Recovery

No action necessary.

### SbrUpdatedBindings

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of existing bindings updated but not deleted, i.e. the Session Reference removed is not the last one
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Peg Condition</b>	This peg is updated whenever an alternate key record is deleted.
<b>Measurement Scope</b>	Place Association
<b>Recovery</b>	No action necessary.

### SbrMaxBindingAgeAtTerm

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum binding (final) age when binding is terminated due to termination of all associated sessions.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The time interval starts when the binding becomes final and stops when binding is terminated due to termination of all associated sessions.
<b>Measurement Scope</b>	Place Association
<b>Recovery</b>	No action necessary.

### SbrAvgBindingAgeAtTerm

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average binding (final) age when binding is terminated due to termination of all associated sessions.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The time interval starts when the binding becomes final and stops when binding is terminated due to termination of all associated sessions.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrAvgBindingDbRead

<b>Measurement Group</b>	SBR Binding Performance
--------------------------	-------------------------

<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average rate of Binding database reads per second
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	It is calculated based on the total number of sampled binding database reads during the collection interval.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrMaxBindingDbRead

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum rate of Binding database reads
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrAvgBindingDbWrite

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average rate of Binding database writes per second
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	It is calculated based on the total number of sampled binding database writes during the collection interval.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrMaxBindingDbWrite**

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum rate of Binding database writes
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrLockCollisions**

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	The number of collisions that occurred periodically while acquiring a lock
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a collision occurs while acquiring a lock
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**TmSbrProcessingTime**

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	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.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time a stack event is received from P-DRA and is sent back the response to P-DRA
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrEarlySlaveBindingsCreated

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	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.
<b>Measurement Dimension</b>	Simple
<b>Description</b>	Single
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a binding capable session initiation request is received and all of the following conditions are true: <ul style="list-style-type: none"> <li>• 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)</li> <li>• The existing EarlyMaster sessionRef has not been in existence for longer than the Maximum Early Binding Lifetime configured in <b>Policy DRA &gt; Configuration &gt; Network-Wide Options</b></li> <li>• PCRF Pooling is Enabled</li> </ul>
<b>Measurement Scope</b>	Network Element, Server Group, Resource Domain, Place, Place Association
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1. This measurement gives an indication of the frequency at which the early binding mechanism is being exercised.</li> <li>2. Contact <a href="#">My Oracle Support (MOS)</a>.</li> </ol>

### SbrFinalBindingsFollowed

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of binding capable session initiation requests that matched a final binding and were routed using the bound PCRF.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time a binding capable session initiation request is received and all of the following conditions are true: <ul style="list-style-type: none"> <li>• 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)</li> <li>• PCRF Pooling is Enabled</li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**SbrSlavePollingContinue**

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	A count of the number of early binding polling attempts for which the poller was instructed to continue polling.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an Early Binding Slave session polls the Early Binding Master and all of the following conditions are true: <ul style="list-style-type: none"> <li>• The Early Binding Master sessionRef still exists in the binding database and is in the EarlyMaster state.</li> <li>• The Early Binding Slave sessionRef still exists in the binding database</li> <li>• The Early Binding Master sessionRef has not been in existence for longer than the Maximum Early Binding Lifetime</li> <li>• PCRF Pooling is Enabled</li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).



## SbrSlavePollingRouteToPcrf

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	A count of the number of early binding polling attempts for which the poller was instructed to route the request to a bound PCRF.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an Early Binding Slave session polls the Early Binding Master and all of the following conditions are true: <ul style="list-style-type: none"> <li>• The Early Binding Master sessionRef still exists in the binding database and is in the Final state.</li> <li>• The Early Binding Slave sessionRef still exists in the binding database</li> <li>• PCRF Pooling is Enabled</li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

## SbrPolicyBindingRecsAvg

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average number of active SBR Binding sessions
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all SBR Policy Binding Records KPI samples taken during the collection interval (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	All

### Recovery

No action necessary.

**SbrPolicyBindingRecsPeak**

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum number of active SBR Binding sessions
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum of all SBR Policy Binding Records KPI samples taken during the collection interval (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**EvSuspectBindingEventIgnored**

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Suspect Binding events that were ignored because they arrived within the Ignore Interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All
<b>Recovery</b>	Modify the "Suspect Binding Removal Events Ignore Interval" value in <b>Policy and Charging &gt; Configuration &gt; Policy DRA &gt; Network-Wide Options</b> if the measurement becomes too large.

**EvSuspectBindingEventCountReset**

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times a Suspect Binding event resets the Suspect Binding Count because it arrived after the Reset Interval.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time a suspect 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.
<b>Measurement Scope</b>	All
<b>Recovery</b>	Adjust the "Suspect Binding Removal Events Reset Interval" value in <b>Policy and Charging &gt; Configuration &gt; Policy DRA &gt; Network-Wide Options</b> if necessary.

## EvSuspectBindingRemoved

<b>Measurement Group</b>	SBR Binding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Remove Immediately, Threshold Exceeded, Total)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.  <b>Note:</b> This measurement is pegged twice, once for any reason listed above, and once for "Total."
<b>Measurement Scope</b>	All
<b>Recovery</b>	Adjust the "Suspect Binding Removal Events Threshold" value in <b>Policy and Charging &gt; Configuration &gt; Policy DRA &gt; Network-Wide Options</b> 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 75: SBR Binding Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
InitReqRejectedTreatmentConfigToRoute	The number of times a binding capable session initiation request is not routed, even though session exceeded treatment is configured to route.	5 min
MaxSessionPerImssiExceeded	The number of times the maximum allowed session per IMSI limit was exceeded.	5 min
MaxSessPerApnExceededSisInvocationFail	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
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

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times a binding capable session initiation request is not routed, even though session exceeded treatment is configured to route.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• Maximum sessions per APN limit is not reached yet but not slots are available</li> <li>• Maximum sessions per APN limit is reached but binding state is early.</li> <li>• 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 <b>Policy DRA &gt; Network-Wide Options</b>)</li> </ul>
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times the maximum allowed session per IMSI limit was exceeded.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented by one each time the maximum allowed binding-capable session limit per IMSI is exceeded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Network

**Recovery**

When a new binding-capable session initiation 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, 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**

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors creating a binding record.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in creating a binding record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrUpdateBindDbErr**

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors updating a binding record.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in updating a binding record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrRemoveBindDbErr**

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors removing a suspect binding record.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in removing a suspect binding record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrCreateAltKeyDbErr**

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors creating an alternate key record.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in creating an alternate key record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrRemoveAltKeyDbErr

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors removing an alternate key record.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in removing an alternate key record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrFindBindDbErr

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors when encountered for finding a binding record.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in finding a binding record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.



## SbrEarlyTooLongSrRemoved

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	A count of the number of sessionRefs found to be in the EarlyMaster or EarlySlave state for longer than the Maximum Early Binding Lifetime.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• PCRF Pooling is Enabled AND <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• A slave session polls a master sessionRef that has been in the EarlyMaster state for longer than the Maximum Early Binding Lifetime</li> </ul> </li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

## SbrSlavePollingFail

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an Early Binding Slave session polls the Early Binding master and the following conditions are met: <ul style="list-style-type: none"> <li>• PCRF Pooling is Enabled AND <ul style="list-style-type: none"> <li>• The Early Binding Master sessionRef no longer exists in the binding database OR</li> <li>• The Early Binding Slave sessionRef no longer exists in the binding database OR</li> <li>• 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</li> </ul> </li> </ul>
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#).

**SbrSuspectSrRemoved**

<b>Measurement Group</b>	SBR Binding Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	A count of the number of binding sessionRefs removed as a result of the Suspect Binding mechanism.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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).
<b>Measurement Scope</b>	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. 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 76: 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 occurred 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

Measurement Tag	Description	Collection Interval
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
SbrAvgOcSessionAgeTermPerApn	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
SbrMaxOcSessionAgeTermPerApn	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

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of new sessions created.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever a new session is created.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrSessionsRefresh

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	The number of existing sessions refreshed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever an existing session is refreshed.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrSessionsDeleted

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of sessions removed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever a session is deleted.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrAvgSessionAgeTermPerAPN

<b>Measurement ID</b>	10863
<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by APN ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrMaxSessionAgeTermPerAPN**

<b>Measurement ID</b>	10864
<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by APN ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrAvgSessionDbRead**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average rate of Session database reads per second
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	It is calculated based on the total number of sampled session database reads during the collection interval.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrMaxSessionDbRead**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum rate of Session database reads
<b>Collection Interval</b>	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

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed
<b>Description</b>	The number of collisions occurred periodically while acquiring a lock to update PendingRar table.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a collision occurs while acquiring a lock to update PendingRar table.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrPolicySessionRecsAvg

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average number of active SBR Policy sessions
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all SBR Policy Session Records KPI samples taken during the collection interval (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrPolicySessionRecsPeak

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum number of active SBR Policy sessions.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum of all SBR Policy Session Records KPI samples taken during the collection interval (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.



**SbrOcSessionsCreated**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of new Online Charging sessions created.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a new Online Charging session is successfully created.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrOcSessionsRefreshed**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of new Online Charging sessions refreshed
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a new Online Charging session is successfully refreshed.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrOcSessionsRemoved**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of new Online Charging sessions removed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Description</b>	The average rate of Online Charging Session database writes per second.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all the SBR Online Charging Session DB Write Rate KPI samples taken during the collection interval.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrMaxOcSessionDbWrites

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum rate of Online Charging Session database writes per second.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum of all the SBR Online Charging Session DB Write Rate KPI samples taken during the collection interval.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### SbrAvgOcSessionAgeTermPerApn

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by APN ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All

**Recovery**

No action necessary.

**SbrMaxOcSessionAgeTermPerApn**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by APN ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	All

**Recovery**

No action necessary.

**SbrOcSessionRecsAvg**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average number of active SBR Online Charging sessions
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all SBR Online Charging Session Records KPI samples taken during the collection interval (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	All

**Recovery**

No action necessary.

**SbrOcSessionRecsPeak**

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Max

<b>Measurement Dimension</b>	Single
<b>Description</b>	The maximum number of active SBR Online Charging sessions
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum of all SBR Online Charging Session Records KPI samples taken during the collection interval (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this KPI).
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

### RxInvokeSisPerRarType

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	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)
<b>Description</b>	The number of times that the Session Integrity Service received a request to invoke the Session Integrity Service for each RAR type.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time a request is received to invoke the Session Integrity Service via invokeSessionIntegrityService stack event for each RAR type.  <b>Note:</b> There will be a separate array value for each type of release.  <b>Note:</b> This measurement is pegged twice, once for RAR types and once for "Total."
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action required.

### TxInvokeSisResultPerResultCode

<b>Measurement Group</b>	SBR Session Performance
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	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)
<b>Description</b>	The number of times that the Session Integrity Service was invoked per result type.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time the invokeSessionIntegrityServiceResult response is sent out. The array element corresponding to the given result will be pegged.  <b>Note:</b> This measurement is pegged twice, once for result type and once for "Total."
<b>Measurement Scope</b>	All
<b>Recovery</b>	Modify the "Query RAR Queue Capacity Per Session Server Group" or "Release RAR Queue Capacity Per Session Server Group" in <b>Policy and Charging &gt; Configuration &gt; Policy DRA &gt; Network-Wide Options</b> .

## 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 77: 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

Measurement Tag	Description	Collection Interval
SbrRefreshOcSessionDbErr	Number of Online Charging session refresh errors	5 min
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**

<b>Measurement Group</b>	SBR Session Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors terminating a session record.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in terminating a session record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	
No action necessary.	

**SbrFindSessDbErr**

<b>Measurement Group</b>	SBR Session Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of errors when encountered for finding a session record.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This peg is updated whenever there is an error in finding a session record.
<b>Measurement Scope</b>	All
<b>Recovery</b>	
No action necessary.	

**SbrRemSessRarAttempts**

<b>Measurement Group</b>	SBR Session Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	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**

<b>Measurement Group</b>	SBR Session Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Online Charging sessions not found.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an Online Charging session record is not found in the SBR Session database.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrRefreshOcSessionDbErr**

<b>Measurement Group</b>	SBR Session Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Online Charging session refresh errors.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time there is a failure in refreshing an Online Charging session record in the SBR Session database.
<b>Measurement Scope</b>	All
<b>Recovery</b>	No action necessary.

**SbrRemoveOcSessionDbErr**

<b>Measurement Group</b>	SBR Session Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Online Charging session removal errors.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time there is a failure in deleting an Online Charging Session record from the SBR Session database.
<b>Measurement Scope</b>	All
<b>Recovery</b>	

No action necessary.

### TxPendingRarDeletedExceedMax

<b>Measurement Group</b>	SBR Session Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Query, Release, and Total)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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

<b>Measurement ID</b>	9901
<b>Measurement Group</b>	Server Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>The number of error trace conditions. This indicates that an expected but abnormal path was taken in the software, which warrants further investigation.</p> <p>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</p>

trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events.

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Any time a software path is executed that contains an error trace, regardless of whether or not error tracing is enabled.
<b>Measurement Scope</b>	NE, Server

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if any unexpected non-zero values in this measurement occur.

**EvVital**

<b>Measurement ID</b>	9900
<b>Measurement Group</b>	Server Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>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.</p> <p>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.</p> <p>It is a VITAL error condition for any other instance.</p>
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Any time a software path is executed that contains a vital trace
<b>Measurement Scope</b>	NE, Server

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if any unexpected non-zero values in this measurement occur.

## Server M3UA Exception measurements

Table 78: 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 M3UA message that the message cannot be processed due to some problem with the message syntax or semantics.	30 min
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

<b>Measurement Group</b>	Server M3UA Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an ERROR message is sent.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxM3uaERROR**

<b>Measurement Group</b>	Server M3UA Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time an ERROR message is received.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**M3UAStackQueueFull**

<b>Measurement Group</b>	Server M3UA Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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. 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, contact [My Oracle Support \(MOS\)](#).

### ANSIDiscardsNoPDUBuffer

**Measurement ID** 9245

**Measurement Group** Server M3UA Exception

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress ANSI messages that were discarded because no ANSI PDU Buffers were available.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time an ANSI message is discarded
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**ITUDiscardsNoPDUBuffer**

<b>Measurement Group</b>	Server M3UA Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress messages that were discarded because no ITUI/IITUN PDU Buffers were available.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time an ITUI message is discarded
<b>Measurement Scope</b>	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, contact [My Oracle Support \(MOS\)](#).

**Server M3UA Performance measurements****Table 79: 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



Measurement Tag	Description	Collection Interval
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
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
M3UAShouldQueuePeak	Peak M3UA Network Management Event Queue utilization (0-100%) measured during the collection interval.	30 min
M3UAShouldQueueAvg	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

<b>Measurement Group</b>	Server M3UA Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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
<b>Collection Interval</b>	30 min, Daily
<b>Peg Condition</b>	This measurement is incremented by one each time any of the following occur: <ul style="list-style-type: none"> <li>An ASP-UP message is sent.</li> </ul>

- 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

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• An ASP-UP message is sent.</li> <li>• An ASP-DOWN message is sent.</li> <li>• An ASP-ACTIVE message is sent.</li> <li>• An ASP-INACTIVE message is sent.</li> <li>• An ERROR message is sent.</li> <li>• A DAUD message is sent.</li> <li>• A BEAT message is sent.</li> <li>• A BEAT-ACK message is sent.</li> </ul>
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

## RxNonDataOctets

<b>Measurement Group</b>	Server M3UA Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• An ASP-UP-ACK message is received</li> <li>• An ASP-DOWN-ACK message is received</li> <li>• An ASP-ACTIVE-ACK message is received</li> <li>• An ASP-INACTIVE-ACK message is received</li> </ul>

- 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

<b>Measurement Group</b>	Server M3UA Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The maximum M3UA Stack Event Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### M3UAStackQueueAvg

<b>Measurement Group</b>	Server M3UA Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single

<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average of all M3UA Stack Event Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**SCTPAggrQueuePeak**

<b>Measurement Group</b>	Server M3UA Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak SCTP Aggregate Association Writer Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The maximum SCTP Aggregate Association Writer Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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.

- If the problem persists, contact [My Oracle Support \(MOS\)](#).

## SCTPAggrQueueAvg

<b>Measurement Group</b>	Server M3UA Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Sctp Aggregate Association Writer Queue utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average of all Sctp Aggregate Association Writer Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	NE, Server

### Recovery

- 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.
- 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**.
- 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**.
- 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.
- 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.
- If the problem persists, contact [My Oracle Support \(MOS\)](#).

## Server M3UA Usage measurements

Table 80: 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

Measurement Tag	Description	Collection Interval
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 information about point code and user part status in the network.	30 min
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

<b>Measurement Group</b>	Server M3UA Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	This measurement gives the level of ASPSM M3UA signaling that occurs on the MP server during the reporting period.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time any of the following occur: <ul style="list-style-type: none"> <li>• An ASP-UP message is sent.</li> <li>• An ASP-DOWN message is sent.</li> <li>• A BEAT message is sent.</li> <li>• A BEAT-ACK message is sent.</li> </ul>
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

### RxASPSM

<b>Measurement Group</b>	Server M3UA Usage
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	This measurement gives the level of ASPSM M3UA signaling occurring on the MP server during the reporting period.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time any of the following occur: <ul style="list-style-type: none"> <li>• An ASP-UP-ACK message is received</li> <li>• An ASP-DOWN-ACK message is received</li> <li>• A BEAT message is received</li> <li>• A BEAT-ACK message is received</li> </ul>
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

### TxASPTM

<b>Measurement Group</b>	Server M3UA Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	This measurement gives the level of ASPTM M3UA signaling that occurs on the MP server during the reporting period.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time any of the following occur: <ul style="list-style-type: none"> <li>• An ASP-ACTIVE message is sent.</li> <li>• An ASP-INACTIVE message is sent.</li> </ul>
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

### RxASPTM

<b>Measurement Group</b>	Server M3UA Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	This measurement gives the level of ASPTM M3UA signaling occurring on the MP server during the reporting period.
<b>Collection Interval</b>	30 min



<b>Peg Condition</b>	This measurement is incremented by one each time any of the following occur: <ul style="list-style-type: none"> <li>• An ASP-ACTIVE-ACK message is received</li> <li>• An ASP-INACTIVE-ACK message is received</li> </ul>
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

## TxDAUD

<b>Measurement Group</b>	Server M3UA Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is incremented by one each time a DAUD message is sent.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

## RxSSNM

<b>Measurement Group</b>	Server M3UA Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• A DUNA message is received</li> <li>• A DAVA message is received</li> </ul>

- 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 81: 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

Measurement Tag	Description	Collection Interval
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
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

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress messages M3RL discarded because no routing information exists for the RSP/Destination.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	NE, Server

#### Recovery

If a high number of these errors occurs, then an internal routing table problem exists. Contact [My Oracle Support \(MOS\)](#) for assistance.

**TxM3RLDestUnavail**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress messages M3RL discarded because the RSP/Destination was Unavailable.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress messages M3RL discarded because the RSP/Destination's congestion level was higher than the message's priority.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress messages M3RL discarded because of an internal buffer overflow.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxM3RLInvalidDPC**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	This value provides a measure of how many ingress messages M3RL discarded because the Service Indicator received was not 0 (SNM) or 3 (SCCP).

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	This value provides a measure of how many ingress messages M3RL discarded because of an internal buffer overflow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	For Each M3RL Stack Event Queue message is discarded
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**M3RLNetMgtQueueFull**

<b>Measurement Group</b>	Server MTP3 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time an M3RL Network Management Even Queue message is discarded
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## Server MTP3 Performance measurements

Table 82: 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

<b>Measurement Group</b>	Server MTP3 Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.



**RxM3RLDataMsgs**

<b>Measurement Group</b>	Server MTP3 Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This counter is pegged each time a M3RL DATA message is received at M3RL from M3UA. This counter includes SCMG messages (which are DATA to the M3RL layer), but does not include SSNM messages.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

**M3RLStackQueuePeak**

<b>Measurement Group</b>	Server MTP3 Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum M3RL Stack Event Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	<ol style="list-style-type: none"> <li>1.</li> <li>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.</li> <li>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.</li> <li>4. Contact <i>My Oracle Support (MOS)</i> for assistance if needed.</li> </ol>

**M3RLStackQueueAvg**

<b>Measurement Group</b>	Server MTP3 Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all M3RL Stack Event Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**M3RLNetMgtQueuePeak**

<b>Measurement Group</b>	Server MTP3 Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum M3RL Network Management Event Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### M3RLNetMgtQueueAvg

<b>Measurement Group</b>	Server MTP3 Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all M3RL Network Management Event Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## Server Resource Usage measurements

Table 83: 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

<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 Process is responsible for all SS7-related processing.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum SS7 Process CPU utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### SS7ProcessAvg

<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Average

<b>Measurement Dimension</b>	Single
<b>Description</b>	The average SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 process is responsible for all SS7-related processing.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all SS7 Process CPU utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**SS7RxMsgRatePeak**

<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum Ingress Message Rate (messages per second) sample taken during the collection interval
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**SS7RxMsgRateAvg**

<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all Ingress Message Rate samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**ItuiPDUUtilPeak**

<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	The peak ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum SS7 ITUI/ITUN PDU Buffer Pool utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### ITUPDUUtilAvg

<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all SS7 ITUI/ITUN PDU Buffer Pool utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### ANSIPDUUtilPeak

<b>Measurement ID</b>	9243
<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single

<b>Description</b>	The peak ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The maximum ANSI PDU buffer pool utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**AnsiPDUUtilAvg**

<b>Measurement ID</b>	9244
<b>Measurement Group</b>	Server Resource Usage
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The average of all ANSI PDU buffer pool utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## Server SCCP Exception measurements

Table 84: 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.  <b>Note:</b> 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.  <b>Note:</b> 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**

<b>Measurement ID</b>	9901
<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>The number of error trace conditions.</p> <p>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.</p>
<b>Collection Interval</b>	
<b>Peg Condition</b>	30 min
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	<p>Contact <a href="#">My Oracle Support (MOS)</a> for assistance if any unexpected non-zero values in this measurement occur.</p>

**EvVital**

<b>Measurement ID</b>	9900
<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>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.</p> <p>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.</p> <p>It is a VITAL error condition for any other instance.</p>
<b>Collection Interval</b>	
<b>Peg Condition</b>	30 min
<b>Measurement Scope</b>	NE, Server

**Recovery**

Contact [My Oracle Support \(MOS\)](#) for assistance if any unexpected non-zero values in this measurement occur.

**RxMaxTpsExceeded**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress SCCP messages that were discarded because of the Local MP Maximum TPS limit.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxMPCongestion**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress SCCP messages that were discarded because of local MP congestion.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxSCCPInvalidDPC

<b>Measurement ID</b>	9055
<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance.

### RxSCCPInvalidSSN

<b>Measurement ID</b>	9056
<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress messages SCCP discarded because the CdPA/CgPA SSN was present but had an invalid value (SSN < 1 or SSN > 254).
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	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

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress messages SCCP discarded because the message type is not currently supported.  <b>Note:</b> Only the following connectionless message types are supported: UDT, XUDT, UDTS, and XUDTS. Valid SCMG message types are SSA, SSP, and SST.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded for an invalid Message Type
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	If a high number of these errors occurs, then the originator of the message may be misconfigured.

### RxSCCPInvalidHop

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of ingress messages SCCP discarded because of a Hop Counter violation associated with CdPA RI=route on GT.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress messages SCCP discarded because of an invalid protocol class.  <b>Note:</b> Only classes 0 and 1 are supported.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded for an invalid Protocol Class
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.  <b>Note:</b> GTI=0 is invalid.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	NE, Server

**Recovery**

If a high number of these errors occurs, then the originator of the message may be misconfigured.

**RxSCCPReassFAIL**

<b>Measurement Group</b>	Server SCCP Exception
--------------------------	-----------------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times the reassembly procedure failed.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each reassembly failure for ingress segmented XUDT message received from network
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of reassembly procedure failures due to internal error or resource limitation.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	N/A
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of reassembly procedure failures due to out-of-sequence segments received from network.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.

### RxSCCPReasTExp

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of reassembly procedure failures due to reassembly timer expiry.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each reassembly procedure failures due to reassembly timer expiry
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of XUDT segments received out-of-sequence from network.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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)
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of partially reassembled segments discarded due to any errors.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each segmented XUDT message that was buffered and discarded due to reassembly procedure failure
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of ingress messages (RI=SSN) SCCP discarded because the CdPA SSN (Local SSN for MPs TPC) was manually disabled.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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]**.

**RxSCCPXudtInvSgmt**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of received XUDT segments resulted in protocol violation decode error.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For protocol decoding errors while parsing ingress segmented XUDT
<b>Measurement Scope</b>	Network, NE, Server

**Recovery**

This value provides a measure of malformed segmented XUDT messages received from the network.

**SCCPGTTFailure**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Count of SCCP GTT Failures due to default GTT handling in SS7Stack.
<b>Collection Interval</b>	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. 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

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress messages SCCP discarded because the RSP/Destination's congestion level was higher than the message's priority.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	SCCP User submitted an Invalid/malformed/unsupported message for egress routing (SCCP User->SCCP N-UnitDataReq)
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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

<b>Measurement ID</b>	9051
<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple

<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	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

<b>Measurement ID</b>	9052
<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress messages SCCP discarded because the CdPA/CgPA SSN was present but had an invalid value (SSN < 1 or SSN > 254).
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	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

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times segmentation procedure failed.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	On failure in completion of segmentation procedure for each large egress user data message.
<b>Measurement Scope</b>	Network, NE, Server
<b>Recovery</b>	

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

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress messages SCCP discarded because the affected DPC status was marked prohibited/unavailable.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress messages SCCP discarded because the CdPA or Affected SSN was either marked prohibited/unavailable.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress messages SCCP discarded because the affected DPC in message is not configured or is unknown.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Number of egress messages SCCP discarded because the CdPA or affected SSN was unknown.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message discarded
<b>Measurement Scope</b>	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 85: 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
RxSCCPPrtsnXudtSgmnt	Number of Rt on Ssn segmented XUDT messages received from network	30 min
RxSCCPSegmentSrvMsg	Number of Segmented XUDTS messages received from network	30 min
RxSCCPsgmntsReassSUCC	Number of XUDT segments reassembled successfully	30 min

### TxSCCPMsgs

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message sent to M3RL
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

### RxSCCPMsgs

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Ingress messages received by SCCP from M3RL (M3RL> SCCP MTP TRANSFER indication).
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message received from M3RL
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	No action required.

**TxSCCPUserMsgs**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Egress messages sent by SCCP User to SCCP to M3RL (SCCPUser-> SCCP N-UnitDataReq->M3RL MTP-TRANSFER request)
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each message sent to M3RL
<b>Measurement Scope</b>	NE, Server

**Recovery**

This value provides a measure of how many egress SCCP User messages are being processed by the MP server.

**TxSCMGMsgs**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of valid egress SCMG messages.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each valid message generated by SCMG
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The maximum Ingress Message Rate (messages per second) sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxMsgRateAvg**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	The average Egress Message Rate (messages per second) during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average of all Ingress Message Rate samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxSCCPUserMsgs**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	Ingress SCCP UDT/XUDT messages sent by SCCP to Configured and available SCCP Users using a local SSN (SCCP->SCCP User N-UnitDataInd)

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each UDT/XUDT message received for SCCP user and was delivered to SCCP user.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	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

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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)
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each UDTs/XUDTs message received for SCCP user and a notification was delivered to SCCP user
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	<ol style="list-style-type: none"> <li>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.</li> <li>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 <b>Main Menu &gt; Alarms &amp; Events &gt; View History</b>.</li> </ol>

### RxSCMGMMsgs

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of valid ingress SCMG messages.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each valid message received for SCMG
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The maximum SCCP Stack Event Queue utilization sample taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**SCCPStackQueueAvg**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	The average of all SCCP Stack Event Queue utilization samples taken during the collection interval.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxSCCPLargeMsgs

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress large user data messages for segmentation.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each large user data message submitted by SCCP User for egress routing.
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed-Bucketed (Index on number of segments created for each larger egress user data message)
<b>Description</b>	The number of segments created for each large egress user data message.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	When the segmentation procedure is completed on each large egress user data packet, using “number of segments” as index.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of times segmentation procedure completed successfully.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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).
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress segmented XUDT messages received from network.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each segmented XUDT message received from network.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single



<b>Description</b>	The number of times reassembly procedure successfully completed.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	On successful completion of reassembly procedure using a number of ingress segmented XUDT messages.
<b>Measurement Scope</b>	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.

**RxSCCPSgmtReassPerMsg**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed-Bucketed (Index on number of segments reassembled)
<b>Description</b>	The number of segments reassembled to create one large ingress user data message.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Rt On Gt Messages forwarded to Local Application.
<b>Collection Interval</b>	30 min

<b>Peg Condition</b>	N/A
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Rt on Gt segmented XUDT messages received from network
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	N/A
<b>Measurement Scope</b>	Network, NE, Server

**Recovery**

This value provides a measure of number of Rt on Gt segmented XUDT messages received from the network.

**RxSCCPRtSsnXudtSgmnt**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of Rt on Ssn segmented XUDT messages received from network.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	N/A
<b>Measurement Scope</b>	Network, NE, Server

**Recovery**

This value provides a measure of number of Route on SSN segmented XUDT messages received from the network.

**RxSCCPSegmentSrvcMsg**

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Single

<b>Measurement Dimension</b>	Simple
<b>Description</b>	The number of Segmented XUDTS messages received from network.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each segmented XUDTS messages received from network
<b>Measurement Scope</b>	Network, NE, Server
<b>Recovery</b>	This value provides a measure of number of segmented XUDTS messages received from the network.

### RxSCCPSgmntsReassSUCC

<b>Measurement Group</b>	Server SCCP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of XUDT segments reassembled successfully.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	For each well-formed ingress segmented XUDT message resulting in a successful reassembly procedure
<b>Measurement Scope</b>	Network, NE, Server
<b>Recovery</b>	This value provides a measure of well-formed ingress segmented XUDT messages that are reassembled successfully.

### Server TCAP Exception measurements

Table 86: 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

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	<p>The number of dialogues aborted by the local TCAP due to a dialogue timeout during the reporting interval.</p> <p><b>Note:</b> A dialogue timer is only started if the local TCAP application sends a <code>Begin</code> 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.</p>

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the Dialogue Cleanup Timer expires
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPAbtPeer**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of dialogues aborted by the remote TCAP application using U-Abort during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcUAbortInd function is called due to receipt of a U-Abort from the remote TCAP peer
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPAbtTcu**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of dialogues aborted by the local TCAP during the reporting interval due to a decision by the local TCAP application.
<b>Collection Interval</b>	30 min

<b>Peg Condition</b>	Each time the tcUAbortReq function is called
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPAbtPeerErr**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of dialogues aborted by the remote TCAP application using P-Abort during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcPAbortInd function is called due to a receipt of a P-Abort from the remote TCAP peer
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPAbtTcuErr**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of dialogues aborted by the local TCAP during the reporting interval due to an error caused by the local TCAP application.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcPAbortInd function is called due to an egress transaction, exception for abort due to the dialogue cleanup timer
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPDialogueTblFull**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a record cannot be added to the TcapDialogue table because the table is full
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time an event cannot be added to the TCAP task queue because the queue is full
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress operations that were cancelled by the local TCAP application during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcUCancelReq function is called
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) as needed for further assistance.

### TCAPOpTimeout

<b>Measurement ID</b>	9226
<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress operations that timed out waiting for a response from the remote TCAP peer during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcLCancelInd function is called
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.



**TCAPRetErrPeer**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress components that resulted in a Return Error response by the remote TCAP peer during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcUErrorInd function is called
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPRetErrTcu**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress components that resulted in a Return Error response by the local TCAP application during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Network, NE, Server
<b>Measurement Scope</b>	

**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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPRejPeer**

<b>Measurement ID</b>	9223
<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress components rejected by the remote TCAP peer during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPRejTcu**

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress components rejected by the local TCAP application during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcUrejectReq function is called
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPRejPeerErr**

<b>Measurement ID</b>	9221
-----------------------	------

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress components discarded due to a component error caused by the remote TCAP peer during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	
<b>Measurement Scope</b>	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. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPRejTcuErr**

<b>Measurement ID</b>	9220
<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress components discarded due to a component error caused by the local TCAP application during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the tcLRejectInd function is called for an egress component
<b>Measurement Scope</b>	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.

- Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

### TCAPComponentTblFull

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress operations discarded due to the MP server's TCAP component internal table being full during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time an Invoke component record cannot be created in the TcapComponent table because the table is full
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Server TCAP Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP response message of which deserialization failed.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	
<b>Measurement Scope</b>	Network, NE, Server

#### Recovery

Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## Server TCAP Performance measurements

Table 87: 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

<b>Measurement Group</b>	Server TCAP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of ingress dialogues created on the MP server during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a TcapDialogue table record is successfully created as a result of a Begin message from the network.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server TCAP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress dialogues created on the MP server during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a TcapDialogue table record is successfully created as a result of a tcBeginReq call from the TC User.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server TCAP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of egress operations created on the MP server during the reporting interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a TcapComponent table record is successfully created as a result of a tcInvokeReq call from the TC User.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Server TCAP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single

<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is driven by the TCAPEventQueue SysMetric exactly as is done for other layers of the stack.
<b>Measurement Scope</b>	
<b>Recovery</b>	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 <i>DSR Alarms and KPIs Reference</i> for details about this alarm.

### TCAPStackQueuePeak

<b>Measurement Group</b>	Server TCAP Performance
<b>Measurement Type</b>	Minimum
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is driven by the TCAPEventQueue SysMetric exactly as is done for other layers of the stack.
<b>Measurement Scope</b>	
<b>Recovery</b>	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 <i>DSR Alarms and KPIs Reference</i> for details about this alarm.

### TCAPDialogueTblAvg

<b>Measurement Group</b>	Server TCAP Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	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

<b>Measurement Group</b>	Server TCAP Performance
<b>Measurement Type</b>	Maximum
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	This measurement is driven by the TCAP ComponentTable SysMetric exactly as is done for the event queues.
<b>Measurement Scope</b>	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 88: 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

<b>Measurement Group</b>	SS7 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	The number of MAP response messages successfully transferred from SS7 TCAP layer to ComAgent layer
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	When TCAP layer successfully forwards message to Communication Agent
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	SS7 Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	When TCAP layer fails to find other XG SS7 MP information in database
<b>Measurement Scope</b>	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 89: 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**

<b>Measurement Group</b>	SS7 Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of MAP response messages successfully transferred from SS7 TCAP layer to ComAgent layer
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	When TCAP layer successfully forwards message to Communication Agent
<b>Measurement Scope</b>	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.

<b>Measurement Tag</b>	<b>Description</b>	<b>Collection Interval</b>
RxTrFarEndClose	Number of times the far-end closed the association	30 min
EvTrManClose	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.	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

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The number of times the far end closed the SCTP connection
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the far-end of the association closes the association by sending either SHUTDOWN or ABORT
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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 out of APP-UP protocol state.  <b>Note:</b> This condition has a special meaning for SS7/M3UA where it is linked with ASP-UP.
<b>Measurement Scope</b>	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) Contact *My Oracle Support (MOS)* for assistance if needed.

**EvTrNoRespClose**

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**EvTrCnxFail**

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The number of times open attempt on UDP socket in Listen Mode failed on the Transport.</li> </ul>
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>• Each time an SCTP connect attempt fails</li> <li>• Each time an UDP open attempt in Listen mode fails</li> <li>• Each time an SCTP open attempt in Listen mode fails</li> </ul>
<b>Measurement Scope</b>	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) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxTrSendFail

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time an attempt to send signaling DATA fails for any reason and the information being sent cannot be mapped to a specific transport
<b>Measurement Scope</b>	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) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxTrRecvFailed

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)

<b>Description</b>	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
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	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) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**EvTrSockInitFail**

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The number of times the socket initialization failed.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time one or more socket options cannot be set according to the settings in the transport's configuration set
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TmSingleTransQueueFull**

<b>Measurement Group</b>	Transport Exception
--------------------------	---------------------



<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The number of egress messages that were discarded because the single Transport Writer Queue was full.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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 from 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 from **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 from **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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### EvSctpAdjPToDwn

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The number of times a configured IP Address of an Adjacent Node goes from Available to Unavailable.

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**EvSctpTransRej**

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time the association has been rejected due to IP address validation failure in the SCTP INITs/INIT-ACKs transmitted by the Adjacent Node.
<b>Measurement Scope</b>	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. 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

<b>Measurement Group</b>	Transport Usage
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	<ul style="list-style-type: none"> <li>• The number of times the SCTP connection was successfully established on the transport.</li> <li>• The number of times the UDP socket in Listen Mode was opened successfully on the transport.</li> </ul>

<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	<ul style="list-style-type: none"> <li>• Each time the SCTP association reaches the APP-UP protocol state (i.e. the connection is successfully ESTABLISHED)</li> <li>• Each time the UDP socket in Listen Mode was opened successfully</li> </ul>
<b>Measurement Scope</b>	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) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TmTrEnaNotUp**

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	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.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Time shall be accumulated for this measurement during the collection interval when all of the following are true: <ul style="list-style-type: none"> <li>• the association is in the ENABLED administrative state</li> <li>• the association is not in the ASP-UP protocol state for M3UA and APP-UP for other Plugins</li> </ul>
<b>Measurement Scope</b>	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) Contact *My Oracle Support (MOS)* for assistance if needed.

### RxTmSctpBufAvg

<b>Measurement Group</b>	Transport Usage
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The Average Value of the number of bytes in SCTP RX Window
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server

#### Recovery

No action required. This is debug statistical information retrieved from getsockopt (SO\_RCVBUF) interface.

### RxTmSctpBufPeak

<b>Measurement Group</b>	Transport Usage
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The Peak Value of the number of bytes in SCTP RX Window
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Transport)
<b>Description</b>	The number of octets sent on the SCTP/UDP Transport. It does not include SCTP, UDP, IP, or Ethernet headers
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a DATA/non-DATA message is successfully sent on the transport (incremented by the number of octets in the message)
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Transport)
<b>Description</b>	The number of octets sent on the SCTP/UDP Transport. It does not include SCTP, UDP, IP, or Ethernet headers
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	Each time a DATA/non-DATA message is successfully received on the transport (incremented by the number of octets in the message)
<b>Measurement Scope</b>	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

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (by Transport)
<b>Description</b>	The peak single Transport Writer Queue utilization (0-100%) measured during the collection interval (averaged over 2 sec)
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	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 from 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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.



**TmSingleTransQueueAvg**

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (by Transport)
<b>Description</b>	The average single Transport (SCTP/UDP) Writer Queue utilization (0-100%) measured during the collection interval (averaged over 2 sec)
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Transport's Queue is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport
<b>Measurement Scope</b>	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. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**SctpTransPeerCWNDPeak**

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The peak value of congestion window size recorded for the peer of a SCTP transport during the collection interval
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	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**

<b>Measurement Group</b>	Transport Exception
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The average of congestion window size recorded for the peer of a SCTP transport during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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**

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The peak value of smoothed round trip time for the SCTP Transport address during the collection interval
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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**

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (per Transport)

<b>Description</b>	The average value of smoothed round trip time for the SCTP Transport address during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

### SctpTransUnAckedDataPeak

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Max
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The peak number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval.
<b>Collection Interval</b>	30 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	NE, Server
<b>Recovery</b>	This is debug information, which is retrieved from sctp socket option (SCTP_STATUS).

### SctpTransUnAckedDataAvg

<b>Measurement Group</b>	Transport Performance
<b>Measurement Type</b>	Average
<b>Measurement Dimension</b>	Arrayed (per Transport)
<b>Description</b>	The average number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval
<b>Collection Interval</b>	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.

<b>Measurement Tag</b>	<b>Description</b>	<b>Collection Interval</b>
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

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Number of messages given path topology hiding treatment on messages routed to an Untrusted Network
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**RxPathTopology**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Number of messages given path topology hiding treatment on messages received from an Untrusted Network
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTR and ATR respectively
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**EvHssTopology**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Number of messages given S6a/S6d HSS topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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  <b>Note:</b> If S6a/S6d HSS TH treatment is applied to more than one AVP in a message, the counter is only incremented once
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

**EvMmeTopology**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	Number of messages given MME/SGSN topology hiding treatment

<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MME/SGSN TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR  <b>Note:</b> If MME/SGSN TH treatment is applied to more than one AVP in a message, the counter is only incremented once
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required

### EvMmeTopologyException

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of messages given exception treatment while applying MME/SGSN topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When MME/SGSN TH exception treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Ensure that all MME/SGSN hostnames to be hidden are present in the MME/SGSN Configuration Set

### EvHssTopologyException

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When S6a/S6d HSS TH exception treatment is applied to a Request message at TH trigger point RTH
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Check the HSS Vendor and request the vendor to be RFC 6733 Compliant



**EvPcrfTopology**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of messages given S9 PCRF topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When S9 PCRF TH treatment is applied to either a Request or Answer message TH trigger points RTH, RTR, ATH, and ATR
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action necessary	

**EvPcrfTopologyMp**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given S9 PCRF topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When S9 PCRF TH treatment is applied to either a Request or Answer message TH trigger points RTH, RTR, ATH, and ATR
<b>Measurement Scope</b>	Site
<b>Recovery</b>	
No action necessary	

**EvPcrfTopologyExceptionMp**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given exception treatment while applying S9 PCRF topology hiding treatment
<b>Collection Interval</b>	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

<b>Peg Condition</b>	When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR  <b>Note:</b> If S9 AF/pCSCF TH treatment is applied to more than one AVP in a message, the counter is only incremented once
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action necessary

### EvAfTopologyMp

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given S9 AF/pCSCF topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR  <b>Note:</b> If S9 AF/pCSCF TH treatment is applied to more than one AVP in a message, the counter is only incremented once
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action necessary

### EvAfTopologyExceptionMp

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	Site

**Recovery**

No action necessary

**EvAfTopologyException**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action necessary

**TxPathTopologyMp**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given path topology hiding treatment on messages routed to an Untrusted Network
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action necessary

**RxPathTopologyMp**

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single

<b>Description</b>	The number of messages given path topology hiding treatment on messages routed from an Untrusted Network
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action necessary

### EvHssTopologyMp

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by Connection ID)
<b>Description</b>	The number of messages given S6a/S6d HSS topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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  <b>Note:</b> If S6a/S6d HSS TH treatment is applied to more than one AVP in a message, the counter is only incremented once
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action necessary

### EvMmeTopologyMp

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given MME/SGSN topology hiding treatment
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	Each time MME/SGSN TH treatment is applied to either a Request or Answer message a TH trigger points RTH, RTR, ATH, and ATR  <b>Note:</b> If MME/SGSN TH treatment is applied to more than one AVP in a message, the counter is only incremented once
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action necessary

### EvMmeTopologyExceptionMp

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given exception treatment while applying MME/SGSN topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	Each time MME/SGSN TH treatment is applied to either a Request or Answer message a TH trigger points RTH and ATH trigger points
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Ensure that all MME/SGSN hostnames to be hidden are present in the MME/SGSN Configuration Set

### EvHssTopologyExceptionMp

<b>Measurement Group</b>	Topology Hiding Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Single
<b>Description</b>	The number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When S6a/S6d HSS TH excpetion treatment is applied to Request at RTH trigger point
<b>Measurement Scope</b>	Site
<b>Recovery</b>	Check with the HSS Vendor and request the vendor to be RFC 6733 Compliant.

## TTG Performance measurements

Table 90: 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

<b>Measurement Group</b>	TTG Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTG ID)
<b>Description</b>	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.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: <ul style="list-style-type: none"> <li>• TTG is assigned to the Route Group within the Route List</li> </ul>

- 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.



<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: <ul style="list-style-type: none"> <li>• TTG is assigned to the Route Group within the Route List</li> <li>• TTG is owned by the local DSR Node</li> <li>• Request message's Application-Id matches the Application-Id assigned to the local TTG</li> <li>• TTG's Admin State = Enabled</li> <li>• 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</li> <li>• Message Priority = 1</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtgSelectedP2

<b>Measurement Group</b>	TTG Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTG ID)
<b>Description</b>	The number of messages routed to the TTG with message priority 2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: <ul style="list-style-type: none"> <li>• TTG is assigned to the Route Group within the Route List</li> <li>• TTG is owned by the local DSR Node</li> <li>• Request message's Application-Id matches the Application-Id assigned to the local TTG</li> <li>• TTG's Admin State = Enabled</li> <li>• 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</li> <li>• Message Priority = 2</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtgSelectedPrimaryTtg**

<b>Measurement Group</b>	TTG Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTG ID)
<b>Description</b>	The number of request messages routed to the TTG where the TTG is associated with the primary Route Group in the Route List.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: <ul style="list-style-type: none"> <li>• TTG is assigned to the Route Group within the Route List</li> <li>• TTG is owned by the local DSR Node</li> <li>• Request message's Application-Id matches the Application-Id assigned to the local TTG</li> <li>• TTG's Admin State = Enabled</li> <li>• 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</li> <li>• Route Group within Route List is the current Active Route Group for the Route List</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtgSelectedSecondaryTtg**

<b>Measurement Group</b>	TTG Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTG ID)
<b>Description</b>	The number of request messages routed to the TTG where the TTG is associated with a secondary Route Group in the Route List.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is updated when a Route Group is selected from a Route List and these criteria are met: <ul style="list-style-type: none"> <li>• TTG is assigned to the Route Group within the Route List</li> <li>• TTG is owned by the local DSR Node</li> <li>• Request message's Application-Id matches the Application-Id assigned to the local TTG</li> <li>• TTG's Admin State = Enabled</li> </ul>

- 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)

<b>Description</b>	Duration of TTG Loss Percent Range2
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>When the DRL changes a local TTG's Current Loss Percent value, it shall:</p> <ul style="list-style-type: none"> <li>• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"</li> <li>• Save the new Current Loss Percent value in the TTG's RT-DB record</li> <li>• If the TTG's old Current Loss Percent value is not equal to 0, then: <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time</li> </ul> </li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtgTmLossRateRange3

<b>Measurement Group</b>	TTG Performance
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (by TTG ID)
<b>Description</b>	Duration of TTG Loss Percent Range3
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>When the DRL changes a local TTG's Current Loss Percent value, it shall:</p> <ul style="list-style-type: none"> <li>• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"</li> <li>• Save the new Current Loss Percent value in the TTG's RT-DB record</li> <li>• If the TTG's old Current Loss Percent value is not equal to 0, then: <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> </ul> </li> </ul>

- 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 91: 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

## Measurements

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
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

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were diverted from another TTP, with message priority 0 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction is marked as "TTP Diverted" in its PTR</li> <li>• Message Priority = 0</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.



**TtpDivertedInP0Y**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were diverted from another TTP, with message priority 0 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction is marked as "TTP Diverted" in its PTR</li> <li>• Message Priority = 0</li> <li>• Message Color = Yellow</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpDivertedInP1G**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were diverted from another TTP, with message priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction is marked as "TTP Diverted" in its PTR</li> <li>• Message Priority = 1</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpDivertedInP1Y**

<b>Measurement Group</b>	TTP Performance
--------------------------	-----------------

<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were diverted from another TTP, with message priority 1 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction is marked as "TTP Diverted" in its PTR</li> <li>• Message Priority = 1</li> <li>• Message Color = Yellow</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDivertedInP2G

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were diverted from another TTP, with message priority 2 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction is marked as "TTP Diverted" in its PTR</li> <li>• Message Priority = 2</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDivertedInP2Y

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)

<b>Description</b>	The number of request messages routed to TTP which were diverted from another TTP, with message priority 2 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction is marked as "TTP Diverted" in its PTR</li> <li>• Message Priority = 2</li> <li>• Message Color = Yellow</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDivertedOutP0G

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were throttled/diverted, with message priority 0 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was diverted</li> <li>• Message Priority = 0</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDivertedOutP0Y

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were throttled/diverted, with message priority 0 and color yellow.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was diverted</li> <li>• Message Priority = 0</li> <li>• Message Color = Yellow</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDivertedOutP1G

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were throttled/diverted, with message priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was diverted</li> <li>• Message Priority = 1</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDivertedOutP1Y

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were throttled/diverted, with message priority 1 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was diverted</li> <li>• Message Priority = 1</li> <li>• Message Color = Yellow</li> </ul>

**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**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of DOIC Protocol Errors.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	This measurement is incremented whenever event TtpEvDoicException is generated.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpDropP0G**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of transactions abandoned due to TTP throttling/diversion, with message priority 0 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The DRL abandoned routing of a transaction and all of these criteria are met: <ul style="list-style-type: none"> <li>• Last routing failure encountered was due to TTP diversion</li> <li>• Message Priority = 0</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpDropP0Y**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of transactions abandoned due to TTP throttling/diversion, with message priority 0 and color yellow.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	The DRL abandoned routing of a transaction and all of these criteria are met: <ul style="list-style-type: none"> <li>• Last routing failure encountered was due to TTP diversion</li> <li>• Message Priority = 0</li> <li>• Message Color = Yellow</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDropP1G

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of transactions abandoned due to TTP throttling/diversion, with message priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The DRL abandoned routing of a transaction and all of these criteria are met: <ul style="list-style-type: none"> <li>• Last routing failure encountered was due to TTP diversion</li> <li>• Message Priority = 1</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpDropP1Y

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of transactions abandoned due to TTP throttling/diversion, with message priority 1 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The DRL abandoned routing of a transaction and all of these criteria are met: <ul style="list-style-type: none"> <li>• Last routing failure encountered was due to TTP diversion</li> <li>• Message Priority = 1</li> <li>• Message Color = Yellow</li> </ul>

**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**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were not diverted due to priority override.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> 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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpHandledPOG**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were not throttled, with message priority 0 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was not diverted</li> <li>• Message Priority = 0</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpHandledPOY**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)

<b>Description</b>	The number of request messages routed to TTP which were not throttled, with message priority 0 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was not diverted</li> <li>• Message Priority = 0</li> <li>• Message Color = Yellow</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpHandledP1G

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were not throttled, with message priority 1 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was not diverted</li> <li>• Message Priority = 1</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpHandledP1Y

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were not throttled, with message priority 1 and color yellow.
<b>Collection Interval</b>	5 min

<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was not diverted</li> <li>• Message Priority = 1</li> <li>• Message Color = Yellow</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpHandledP2G

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were not throttled, with message priority 2 and color green.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was not diverted</li> <li>• Message Priority = 2</li> <li>• Message Color = Green</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpHandledP2Y

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of request messages routed to TTP which were not throttled, with message priority 2 and color yellow.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	The TTP was selected as defined by the peg condition criteria defined for <i>TtpSelected</i> and all of these criteria are met: <ul style="list-style-type: none"> <li>• Transaction was not diverted</li> <li>• Message Priority = 2</li> <li>• Message Color = Yellow</li> </ul>

**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)

<b>Description</b>	The number of request messages routed to TTP.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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: <ul style="list-style-type: none"> <li>• Request message's Application-Id matches the Application-Id assigned to the TTP</li> <li>• FQDN assigned to the selected Peer Node/Connection matches the FQDN of the Peer Node assigned to the TTP</li> <li>• TTP's Throttling Admin State = Enabled</li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

### TtpTmLossRateRange1

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The duration of TTP Loss Percent Range1.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DRL changes a local TTG's Current Loss Percent value, it shall: <ul style="list-style-type: none"> <li>• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"</li> <li>• Save the new Current Loss Percent value in the TTG's RT-DB record</li> <li>• If the TTG's old Current Loss Percent value is not equal to 0, then: <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time</li> </ul> </li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpTmLossRateRange2**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The duration of TTP Loss Percent Range2.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DRL changes a local TTG's Current Loss Percent value, it shall: <ul style="list-style-type: none"> <li>• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"</li> <li>• Save the new Current Loss Percent value in the TTG's RT-DB record</li> <li>• If the TTG's old Current Loss Percent value is not equal to 0, then: <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• Update the selected TtgTmLossRateRange-X measurement with the calculated duration of time</li> </ul> </li> </ul>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpTmLossRateRange3**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The duration of TTP Loss Percent Range3.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	When the DRL changes a local TTG's Current Loss Percent value, it shall: <ul style="list-style-type: none"> <li>• Save the time of the event in the TTG's RT-DB record called "Loss Start Time"</li> <li>• Save the new Current Loss Percent value in the TTG's RT-DB record</li> <li>• If the TTG's old Current Loss Percent value is not equal to 0, then:</li> </ul>

- 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**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Duration
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The duration of time (in seconds) that TTP Static Throttling was being applied.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	<p>The time duration interval starts when any of these events occur:</p> <ul style="list-style-type: none"> <li>• The TTP's Operational Reason is changed to "Static Rate Limit Exceeded"</li> <li>• A new measurement collection interval begins and the TTP's Operational Reason is "Static Rate Limit Exceeded"</li> </ul> <p>The time duration interval stops when any of these events occur:</p> <ul style="list-style-type: none"> <li>• The TTP's Operational Reason is changed from "Static Rate Limit Exceeded" to any other value</li> <li>• The current measurement collection interval ends</li> </ul> <p>When a time duration interval completes, the time measured is added to the total measurement value.</p>
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.

**TtpUniqueOLRs**

<b>Measurement Group</b>	TTP Performance
<b>Measurement Type</b>	Simple
<b>Measurement Dimension</b>	Arrayed (by TTP ID)
<b>Description</b>	The number of unique DOIC OLRs successfully processed.
<b>Collection Interval</b>	5 min
<b>Peg Condition</b>	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.
<b>Measurement Scope</b>	Site
<b>Recovery</b>	No action required.



# Appendix

# A

## Policy DRA Error Resolution Procedures

---

### Topics:

- [Error Code 500.....738](#)
- [Error Code 501.....738](#)
- [Error Code 502.....739](#)
- [Error Code 2xx/3xx.....740](#)
- [Error Code 510.....741](#)
- [Error Code 511.....741](#)
- [Error Code 512.....742](#)
- [Error Code 513.....743](#)
- [Error Code 503.....743](#)
- [Error Code 505.....744](#)
- [Error Code 507.....745](#)
- [Error Code 508.....746](#)
- [Error Code 520.....746](#)
- [Error Code 521.....747](#)
- [Error Code 504.....747](#)
- [Error Code 509.....748](#)
- [Error Code 305.....749](#)
- [Error Code 305.....749](#)
- [Error Code 522.....750](#)
- [Error Code 523.....750](#)
- [Error Code 525.....751](#)
- [Error Code 506.....751](#)
- [Error Code 530.....752](#)
- [Error Code 531.....753](#)

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

<b>Description</b>	Binding capable session initiation request is received with no APN.
<b>Associated P-DRA Alarm/Event</b>	Alarm 22730 - Policy and Charging Configuration Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm)
<b>Associated Measurement</b>	<a href="#">RxBindCapMissingApn</a>
<b>Associated Diameter Interface / Message Type</b>	Gx/Gxx CCR-I
<b>GUI Configurable</b>	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

<b>Description</b>	Binding capable session initiation request is received with an APN, but the APN is not configured in the APN configuration.
<b>Associated P-DRA Alarm/Event</b>	Alarm 22730 - Policy and Charging Configuration Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm)
<b>Associated Measurement</b>	<a href="#">RxBindCapUnknownApn</a>

**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 PCRF 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 if 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

<b>Description</b>	Request message is received and a binding with a PCRF was found. Policy DRA can't route the request to PCRF due to PCRF being unreachable.
<b>Associated P-DRA Alarm/Event</b>	Event 22707 - Diameter Message Processing Failure (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<i>TxPdraAnswersGeneratedForDiameterErr</i>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx/Gxx CCR-I</li> <li>• Rx AAR</li> <li>• Gx-Prime CCR-I</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	A slave session could not be routed because, on polling the slave, sessionRef was no longer in the binding database.
<b>Associated P-DRA Alarm/Event</b>	N/A
<b>Associated Measurement</b>	<a href="#">SbrSlavePollingFail</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx/Gxx CCR-I</li> <li>• Rx AAR</li> <li>• Gx-Prime CCR-I</li> </ul>
<b>GUI Configurable</b>	Yes
<b>Recovery</b>	
<ol style="list-style-type: none"> <li>1. See <i>Early binding Processing with PCRF Pool</i> in the Error Resolution appendix of the <i>Policy and Charging Application User Guide</i> to investigate and understand</li> <li>2. Go to the PCA SOAM GUI at <b>Main Menu &gt; Status &amp; Manage &gt; Server</b> to check binding SBRs' status.</li> <li>3. Go to the <b>Main Menu &gt; Alarms &amp; Events &gt; View History</b> to check binding SBR's congestion alarm/event info to determine a relation with the error.</li> <li>4. Go to the PCA SOAM GUI <b>Main Menu &gt; Measurements &gt; Report</b> to search for relevant measurements. Select, but not limited to, "SBR Binding Exception" Measurement Group for the measurements directly related to this error.</li> </ol>	

## Error Code 511

<b>Description</b>	A slave session could not be routed because, on polling the master, sessionRef was no longer in the binding database.
<b>Associated P-DRA Alarm/Event</b>	N/A
<b>Associated Measurement</b>	<a href="#">SbrSlavePollingFail</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx/Gxx CCR-I</li> <li>• Rx AAR</li> <li>• Gx-Prime CCR-I</li> </ul>
<b>GUI Configurable</b>	Yes
<b>Recovery</b>	
<ol style="list-style-type: none"> <li>1. See <i>Early binding Processing with PCRF Pool</i> in the Error Resolution appendix of the <i>Policy and Charging Application User Guide</i> to investigate and understand the circumstances where the error occurs.</li> </ol>	

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

<b>Description</b>	A slave session could not be routed because, on polling the master, sessionRef was early too long.
<b>Associated P-DRA Alarm/Event</b>	N/A
<b>Associated Measurement</b>	<a href="#"><i>SbrEarlyTooLongSrRemoved</i></a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx/Gxx CCR-I</li> <li>• Rx AAR</li> <li>• Gx-Prime CCR-I</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	A slave session could not be routed because, on polling the master, an internal error occurred.
<b>Associated P-DRA Alarm/Event</b>	N/A
<b>Associated Measurement</b>	<a href="#">SbrSlavePollingFail</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx/Gxx CCR-I</li> <li>• Rx AAR</li> <li>• Gx-Prime CCR-I</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	No binding key in Binding Key Priority GUI can be matched or no key is included in the binding dependent message.
<b>Associated P-DRA Alarm/Event</b>	Event 22706 - Binding Key Not Found In Diameter Message (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">TxPdraAnswersGeneratedForDiameterErr</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Rx AAR</li> <li>• Gx-Prime CCR-I</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	Binding record is not found after examining all configured binding keys in Diameter message.
<b>Associated P-DRA Alarm/Event</b>	Event 22718 - Binding Not Found for Binding Dependent Session Initiate Request (refer to the <i>DSR Alarms and KPIs Reference</i> for more information)
<b>Associated Measurement</b>	<a href="#"><i>TxPdraAnswersGeneratedForPsbrErrResp</i></a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Rx AAR</li> <li>• Gx-Prime CCR-I</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	SBR Error - ComAgent timeout
<b>Associated P-DRA Alarm/Event</b>	Event 22704 - Communication Agent Error
<b>Associated Measurement</b>	<a href="#"><i>TxDraErrAnsGeneratedCAFailure</i></a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx CCR-I, CCR-U, and CCR-T</li> <li>• Rx AAR, STR</li> <li>• Gx-Prime CCR-I, CCR-U, and CCR-T</li> </ul>
<b>GUI Configurable</b>	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 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

<b>Description</b>	SBR Error - SBR database error prevents SBR from reading, writing, or deleting a record
<b>Associated P-DRA Alarm/Event</b>	Event 22711 - SBR Database Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">TxPdraAnswersGeneratedForPsbrErrResp</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx CCR-I, CCR-U, and CCR-T</li> <li>• Rx AAR, STR</li> <li>• Gx-Prime CCR-I, CCR-U, and CCR-T</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	SBR PCRF Configuration Error - binding capable session initiation request received, but not PCRFs are configured at the site.
<b>Associated P-DRA Alarm/Event</b>	Alarm 22730 - Policy and Charging Configuration Error
<b>Associated Measurement</b>	<a href="#">TxPdraAnswersGeneratedConfigErr</a>
<b>Associated Diameter Interface / Message Type</b>	Gx CCR-I
<b>GUI Configurable</b>	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

<b>Description</b>	SBR Error - maximum number of Sessions per Binding is Exceeded that fails the binding creation for given IMSI of MSISDN key.
<b>Associated P-DRA Alarm/Event</b>	Event 22719 - Maximum Number of Sessions per Binding Exceeded (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">TxPdraAnswersGeneratedForPsbrErrResp</a>
<b>Associated Diameter Interface / Message Type</b>	Gx CCR-I, CCR-U, and CCR-T
<b>GUI Configurable</b>	

### 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

<b>Description</b>	ComAgent resource unavailable when sending stack event to pSBR.
<b>Associated P-DRA Alarm/Event</b>	Event 22704 - Communication Agent Error (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">TxPdraErrAnsGeneratedCAFailure</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx CCR-I, CCR-U, and CCR-T</li> <li>• Rx AAR, STR</li> </ul>

- 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

<b>Description</b>	Policy DRA Unavailable
<b>Associated P-DRA Alarm/Event</b>	Alarm 22500 - DSR Application Unavailable (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm)
<b>Associated Measurement</b>	<a href="#">RxApplUnavailableForRequest</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• All Gx requests</li> <li>• All Rx Requests</li> <li>• All Gx-Prime Requests</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	Policy DRA Degraded
<b>Associated P-DRA Alarm/Event</b>	Alarm 22501 - DSR Application Degraded (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this alarm)
<b>Associated Measurement</b>	<a href="#">RxApplUnavailableForRequest</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• All Gx requests</li> <li>• All Rx Requests</li> <li>• All Gx-Prime Requests</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	Session ID is missing from Request
<b>Associated P-DRA Alarm/Event</b>	Event 22700 - Protocol errors in Diameter Requests (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">RxPdraRequestProtocolErr</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• All Gx requests</li> <li>• All Rx Requests</li> <li>• All Gx-Prime Requests</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	CC-Request-Type AVP is missing from CCR message
<b>Associated P-DRA Alarm/Event</b>	Event 22700 - Protocol errors in Diameter Requests (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">RxPdraRequestProtocolErr</a>
<b>Associated Diameter Interface / Message Type</b>	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

<b>Description</b>	Invalid AVP value in request message
<b>Associated P-DRA Alarm/Event</b>	Event 22700 - Protocol errors in Diameter Requests (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">RxPdraRequestProtocolErr</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• All Gx requests</li> <li>• All Rx Requests</li> <li>• All Gx-Prime Requests</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	Destination-Host AVP is missing in in-session request
--------------------	---

<b>Associated P-DRA Alarm/Event</b>	Event 22700 - Protocol errors in Diameter Requests (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">RxPdraRequestProtocolErr</a>
<b>Associated Diameter Interface / Message Type</b>	<ul style="list-style-type: none"> <li>• Gx CCR-U and CCR-T</li> <li>• Rx AAR, STR</li> <li>• Gx-Prime CCR-U, and CCR-T</li> </ul>
<b>GUI Configurable</b>	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

<b>Description</b>	Application ID unsupported by Policy DRA
<b>Associated P-DRA Alarm/Event</b>	Event 22700 - Protocol errors in Diameter Requests (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">RxPdraRequestProtocolErr</a>
<b>Associated Diameter Interface / Message Type</b>	Diameter Requests
<b>GUI Configurable</b>	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

<b>Description</b>	Command Code doesn't match the App ID or doesn't exist
<b>Associated P-DRA Alarm/Event</b>	Event 22700 - Protocol errors in Diameter Requests (refer to the <i>DSR Alarms and KPIs Reference</i> for details about this event)
<b>Associated Measurement</b>	<a href="#">RxPdraRequestProtocolErr</a>
<b>Associated Diameter Interface / Message Type</b>	Diameter Requests
<b>GUI Configurable</b>	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.

## A

AAR	Authentication, Authorization Request (Rx Diameter command)
ACK	Data Acknowledgement
ANSI	<p>American National Standards Institute</p> <p>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.</p>
APN	<p>Access Point Name</p> <p>The name identifying a general packet radio service (GPRS) bearer service in a GSM mobile network. See also GSM.</p>
ASP	<p>Application Server Process</p> <p>A process instance of an Application Server. An Application Server Process serves as an active or standby process of an Application Server (e.g., 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</p>

## 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 (e.g., 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 its 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	<p>Diameter Connection Layer</p> <p>The software layer of the stack which implements Diameter transport connections.</p>
DEA	<p>Diameter Edge Agent</p> <p>Device through which LTE roaming signaling traffic is funneled to protect network element addresses from being exposed to third parties.</p>
Diameter	<p>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.</p> <p>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.</p>
DIH	<p>Diameter Intelligence Hub</p> <p>A troubleshooting solution for LTE, IMS, and 3G Diameter traffic processed by the DSR. DIH does not require separate probes or taps.</p>
DM-IWF	<p>Diameter MAP-Interworking</p>

## 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



**P**

In the Policy Management system, PCRF is located in the MPE device.

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, and are capable of handling any Diameter application or message type.

**R**

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 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

## S

with line or trunk terminations controlled by the MG (e.g., 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

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.

**T**

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