

**Oracle® Communications  
Diameter Signaling Router**

Measurements Reference

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# Table of Contents

<b>Chapter 1: Introduction.....</b>	<b>41</b>
Overview.....	42
Scope and Audience.....	42
Manual Organization.....	42
Documentation Admonishments.....	42
Related Publications.....	43
Locate Product Documentation on the Oracle Technology Network Site.....	43
Customer Training.....	44
My Oracle Support (MOS).....	44
Emergency Response.....	44
 <b>Chapter 2: User Interface Introduction.....</b>	 <b>46</b>
User Interface Organization.....	47
User Interface Elements.....	47
Main Menu Options.....	49
Missing Main Menu options.....	53
Common Graphical User Interface Widgets.....	54
Supported Browsers.....	54
System Login Page.....	54
Main Menu Icons.....	56
Work Area Displays.....	57
Customizing the Splash Page Welcome Message.....	60
Column Headers (Sorting).....	60
Page Controls.....	61
Clear Field Control.....	61
Optional Layout Element Toolbar.....	62
Filters.....	63
Pause Updates.....	65
Max Records Per Page Controls.....	65
 <b>Chapter 3: Measurements Overview.....</b>	 <b>66</b>
Measurements Warning.....	67
Displaying the file list.....	67

Data Export.....	67
Data Export elements.....	67
Configuring data export.....	69
Tasks.....	70
Active Tasks.....	70
Scheduled Tasks.....	73

## **Chapter 4: Measurements.....76**

General measurements information.....	79
Measurements.....	79
Measurement elements .....	79
Generating a measurements report.....	81
Measurements data export elements .....	81
Exporting measurements reports.....	82
Address Resolution Exception measurements.....	83
RxRbarDecodeFailureResol.....	85
RxRbarInvalidImsiMcc.....	85
RxRbarResolFailAll.....	86
RxRbarResolFailCmdcode.....	86
RxRbarResolFailDbFail.....	87
RxRbarResolFailImpiMatch.....	87
RxRbarResolFailImpuMatch.....	87
RxRbarResolFailImsiMatch.....	88
RxRbarResolFailIpv4Match.....	88
RxRbarResolFailIpv6prefixMatch.....	89
RxRbarResolFailMsisdnMatch.....	89
RxRbarResolFailNoAddrAvps.....	90
RxRbarResolFailNoValidAddr.....	90
RxRbarResolFailUnsigned16Match.....	91
RxRbarTransactionsRejected.....	91
RxRbarUnkApplId.....	92
TxRbarAbandonRequest.....	92
Address Resolution Performance measurements.....	93
RxRbarAvgMsgSize.....	94
RxRbarMsgs.....	94
RxRbarResolAll.....	95
RxRbarResolAllMp.....	95
RxRbarResolImpi.....	96
RxRbarResolImpu.....	96
RxRbarResolImsi.....	96

RxRbarResolIpv4.....	97
RxRbarResolIpv6prefix.....	97
RxRbarResolMsisdn.....	97
RxRbarResolRateAvg.....	98
RxRbarResolRatePeak.....	98
RxRbarResolSingleAddr.....	98
RxRbarResolUnsigned16.....	99
TxRbarFwdDefaultDest.....	99
TxRbarFwdNochange.....	99
TxRbarFwdSuccess.....	100
TxRbarMsgAttempt.....	100
Application Routing Rules measurements.....	100
RxApplRuleSelected.....	101
RxApplRuleFwdFailAll.....	102
RxApplRuleFwdFailUnavail.....	102
RxApplRuleDuplicatePriority.....	102
RxArtSelected.....	103
Association Exception measurements.....	103
RxTrFarEndClose.....	105
EvTrManClose.....	105
EvTrNoRespClose.....	106
EvTrCnxFail.....	107
TxTrSendFail.....	107
RxTrRcvFail.....	108
EvTrSockInitFail.....	108
RxAsnM3uaERROR.....	109
EvAsnUpAckTO.....	109
RxAsnUnsolDownAck.....	110
RxAsnInvalidM3ua.....	110
TmSingleTransQueueFull.....	111
EvSctpAdjPToDwn.....	111
EvSctpTransRej.....	112
Association Performance measurements.....	113
TxTrOctets.....	113
RxTrOctets.....	113
SCTPAssocQueuePeak.....	114
SCTPAssocQueueAvg.....	114
Association Usage measurements.....	115
EvTrCnxSuccess.....	116
TmAsnBlkNotDown.....	116
TmAsnEnaNotUp.....	117

Charging Proxy Application (CPA) Exception measurements.....	117
EvCpaMessageDecodeFail.....	119
EvCpaMissingAvp.....	119
EvCpaOOS.....	119
EvCpaSubResourceCongested.....	120
EvCpaUnexpectedSess.....	120
EvCpaUnkDiameterAppId.....	120
RxCpaHaSubResourceUnavail.....	121
RxCpaNon2xxxAnswer.....	121
RxCpaOpStatusUnavail.....	121
RxCpaTransactionsRejected.....	122
RxCpaUnexpected.....	122
TxCpaAnswerByCpa.....	123
TxCpaRteFailure.....	123
Charging Proxy Application (CPA) Performance measurements.....	123
RxCpaAcaEvent.....	125
RxCpaAcaInterim.....	125
RxCpaAcaStart.....	126
RxCpaAcaStop.....	126
RxCpaAccounting.....	126
RxCpaAcrEvent.....	127
RxCpaAcrInterim.....	127
RxCpaAcrStart.....	127
RxCpaAcrStop.....	128
RxCpaMsgProcessed.....	128
TxCpaAnswerMsgToDrl.....	128
TxCpaMsgCopyInd.....	129
TxCpaRequestMsgToDrl.....	129
TxCpaTraceInd.....	129
Charging Proxy Application (CPA) Session DB measurements.....	130
EvCpaNoSbrAccess.....	131
EvCpaSbrAvgRespTime.....	132
EvCpaSbrCreateSess.....	132
EvCpaSbrDeleteSess.....	132
EvCpaSbrPeakRespTime.....	133
EvCpaSbrQryErr.....	133
EvCpaSbrQryMatch.....	133
EvCpaSbrQryNoMatch.....	134
EvCpaSbrResponseTime.....	134
EvCpaSbrUpdateSess.....	134
RxCpaUndeliveredMsg.....	135

TxCpaSbrQueryTot.....	135
Communication Agent (ComAgent) Exception measurements.....	136
CADataFIFOQueueFul.....	140
CADSTxDscrdCong .....	141
CAHSRsrcErr.....	142
CAHSTxDscrdIntErrSR.....	142
CAHSTxDscrdCongSR.....	142
CAHSTxDscrdIntErrSR.....	143
CAHSTxDscrdUnavailSR.....	143
CAHSTxDscrdUnknownSR.....	144
CAHSTxDscrdUnkwnRsrc.....	145
CAHSTxRsrc.....	145
CAMxFIFOQueueFul.....	145
CAPSTxDscrdUnkwnGrp.....	146
CAPSTxDscrdUnavailGrp.....	146
CAPSTxDscrdCongPeer.....	147
CARsrcPoolFul .....	147
CARSTxDscrdCong .....	148
CARSTxDscrdInternalErr.....	148
CARSTxDscrdSvcUnavail .....	149
CARxDiscUnexpEvent .....	149
CARxDscrdBundle.....	150
CARxDscrdConnUnavail .....	150
CARxDscrdDecodeFailed .....	150
CARxDscrdIncompat .....	151
CARxDscrdInternalErr .....	151
CARxDscrdLayerSendFail .....	152
CARxDscrdMsgLenErr .....	152
CARxDscrdUnkServer .....	152
CARxDscrdUnkStkLyr .....	153
CARxMsgUnknown .....	153
CAStackQueueFul .....	154
CATransDscrdInvCorrId .....	154
CATransDscrdStaleErrRsp .....	155
CATransEndAbnorm .....	155
CATransEndAbnormRateAvg .....	156
CATransEndAbnormRateMax .....	156
CATransEndAnsErr .....	157
CATransEndErr .....	157
CATransEndNoResources .....	157
CATransEndNoResponse .....	158

CATransEndUnkwnSvc .....	159
CATransEndUnregSvc .....	159
CATransNoReTxMaxTTL.....	159
CATransRetx .....	160
CATransReTxExceeded.....	161
CATransStaleSuccessRsp .....	161
CATransTTLExceeded.....	162
CATxDscrdBundle.....	162
CATxDscrdConnUnAvail.....	163
CATxDscrdDestUserIncompat.....	163
CATxDscrdEncodeFail.....	163
CATxDscrdInternalErr .....	164
CATxDscrdMxSendFail.....	164
CATxDscrdUnknownSvc .....	165
CATxDscrdUnkServer .....	165
CATxDscrdUnregSvc .....	166
Communication Agent (ComAgent) Performance measurements.....	166
CAAvgDataFIFOQueueUtil.....	169
CAAvgMxFIFOQueueUtil.....	169
CAAvgQueueUtil .....	170
CAAvgRsrcPoolUtil .....	170
CAAvgRxStackEvents .....	171
CAAvgTxStackEvents .....	171
CADSTx .....	171
CAHSTxRsrc.....	172
CAHSTxRsrcRateAvg.....	172
CAHSTxRsrcRateMax.....	173
CAPeakDataFIFOQueueUtil.....	173
CAPeakMxFIFOQueueUtil.....	173
CAPeakQueueUtil .....	174
CAPeakRsrcPoolUtil .....	174
CAPeakRxStackEvents .....	175
CAPeakTxStackEvents .....	175
CAPSTxGrp.....	176
CAPSTxGrpSuccess.....	176
CARSTx .....	176
CARx.....	177
CARxBundled.....	177
CARxEventsBundled.....	178
CARxSuccess.....	178
CATransEndAbnorm .....	178



CATransEndAbnormRateAvg .....	179
CATransEndAbnormRateMax .....	179
CATransEndNorm .....	180
CATransPendingAvg .....	180
CATransPendingMax .....	180
CATransRateAvg .....	181
CATransRateMax .....	181
CATransStarted .....	182
CATransTimeAvg .....	182
CATransTimeMax .....	182
CATx.....	183
CATxBundled.....	183
CATxEventsBundled.....	183
CATxSuccess.....	184
Computer Aided Policy Making (CAPM) measurements.....	184
CAPM_Temp_Invoked.....	185
CAPM_CondSet_True.....	186
CAPM_Action_Set_Fails.....	186
CAPM_Match_Rule.....	187
CAPM_MsgCopyTriggered.....	187
CAPM_RxRejectWithErrorAnswer.....	187
CAPM_RxSilentDiscard.....	188
CAPM_RxRedirectHost.....	188
CAPM_RxRedirectRealm.....	188
CAPM_RxProcessNAI.....	189
CAPM_Match_Rule.....	189
Connection Congestion measurements.....	189
ConnOnsetCL1.....	190
ConnOnsetCL2.....	191
ConnOnsetCL3.....	191
ConnOnsetCL4.....	192
EvEmrCongestionOnset.....	192
EvRemoteBusyCongestion.....	193
EvSmoothedEmrAvg.....	194
EvSmoothedEmrPeak.....	194
RxRejectedConnCongestion.....	194
TmConnInCL1.....	195
TmConnInCL2.....	196
TmConnInCL3.....	196
TmConnInCL4.....	197
Connection Exception measurements.....	198

EvConnCerValFail.....	199
EvConnCexIpChkFail.....	199
EvConnCnxFail.....	200
EvConnDnsFail.....	200
EvConnFarEndClose.....	201
EvConnManClose.....	201
EvConnPeerNumIpFail.....	201
EvConnRelease.....	202
EvSockInitFail.....	202
EvConnTransFail.....	203
RxConnDupPkts.....	203
RxConnDupTsns.....	203
RxConnGapAckBlocks.....	204
RxConnGapAckBlocks.....	204
TxConnRetransDataChunks.....	204
TxConnRetransSegs.....	205
TxConnSendFail.....	205
Connection Performance measurements.....	205
EvConnCnxSuccess.....	208
EvPerConnQueueCongestionChange.....	208
RxConnAvgMPS.....	209
RxConnMsgs.....	209
RxConnOctets.....	210
RxConnPeakMPS.....	210
RxConnRecvBufAvg.....	210
RxConnRecvBufPeak.....	211
RxConnTotalDataChunks.....	211
RxMsgRateAvg.....	212
RxMsgRatePeak.....	212
TxConnMsgs.....	213
TxConnOctets.....	213
TxConnSendBufAvg.....	214
TxConnSendBufPeak.....	214
TxConnTotalDataChunks.....	215
TxPerConnQueueAvg.....	215
TxPerConnQueuePeak.....	216
Diameter Signaling Router (DSR) Application Exception measurements.....	216
RxApplRequestNoRoutes.....	218
RxApplUnavailable.....	218
RxApplUnavailableForAnswer.....	219
RxApplUnavailableForRequest.....	219

TxCpaFullDRLRequestReject.....	220
TxCpaFullDRLAnswerDiscard.....	221
TxFabrFullDRLRequestReject.....	221
TxFabrFullDRLAnswerDiscard.....	222
TxRbarFullDRLRequestReject.....	222
TxRbarFullDRLAnswerDiscard.....	223
TxGlaFullDRLAnswerDiscard.....	223
Diameter Signaling Router (DSR) Application Performance measurements.....	224
RxApplAnswerFwdSuccess.....	228
RxApplAnswerReceived.....	228
RxApplRequestFwdSuccess.....	228
RxApplRequestReceived.....	229
RxCpaAnswerMsgQueueAvg.....	229
RxCpaAnswerMsgQueuePeak.....	229
RxCpaAnswerProcessed.....	230
RxCpaEventMsgQueueAvg.....	230
RxCpaEventMsgQueuePeak.....	230
RxCpaMsgRateAvg.....	231
RxCpaMsgRatePeak.....	231
RxCpaRequestMsgQueueAvg.....	232
RxCpaRequestMsgQueuePeak.....	232
RxCpaRequestProcessed.....	232
RxDmiwfRequestMsgQueuePeak.....	233
RxDmiwfRequestMsgQueueAvg.....	233
RxDmiwfAnswerMsgQueuePeak.....	234
RxDmiwfAnswerMsgQueueAvg.....	234
TxDmiwfFullDRLRequestReject.....	234
TxDmiwfFullDRLAnswerDiscard.....	235
RxDmiwfMsgRatePeak.....	235
RxDmiwfMsgRateAvg.....	236
RxDmiwfRequestProcessed.....	236
RxDmiwfAnswerProcessed.....	237
RxFabrMsgRateAvg.....	237
RxFabrMsgRatePeak.....	238
RxFabrRequestMsgQueueAvg.....	238
RxFabrRequestMsgQueuePeak.....	239
RxFabrRequestProcessed.....	239
RxGlaMsgRateAvg.....	240
RxGlaMsgRatePeak.....	240
RxGlaRequestMsgQueueAvg.....	241
RxGlaRequestMsgQueuePeak.....	241

RxGlaRequestProcessed.....	242
RxPcaRequestProcessed.....	242
RxPcaAnswerProcessed.....	242
RxPcaMsgRateAvg.....	243
RxPcaMsgRatePeak.....	243
RxRbarMsgRateAvg.....	244
RxRbarMsgRatePeak.....	244
RxRbarRequestMsgQueueAvg.....	245
RxRbarRequestMsgQueuePeak.....	245
RxRbarRequestProcessed.....	246
TxApplTransSuccess.....	246
Diameter Egress Transaction measurements.....	247
RxAnswerExpectedAll.....	248
RxAnswerMsgQueueFullDiscard.....	248
RxRedirectHostNotRouted.....	249
RxRedirectHostRouted.....	249
RxRedirectRealmNotRouted.....	250
RxRedirectRealmRouted.....	250
TxAnswerTimeout.....	250
TxAnswerTimeoutAllMp.....	251
TxConnAnswerMsgs.....	251
TxConnectionFailed.....	252
TxConnRequestMsgs.....	252
TxRequestSuccessAllConn.....	253
Diameter Exception measurements.....	253
EvApplIdListInconsistency.....	257
EvConnCeaIdValFail.....	258
EvConnCexTO.....	259
EvConnDpaTO.....	259
EvConnNoComnApps.....	259
EvConnPrvFail.....	260
EvConnRejected.....	260
EvConnRejMaxConnExceeded.....	261
EvConnWdFail.....	261
EvConnWdSuspect.....	262
EvMpCerIdValFail.....	262
EvTransLifetimeExceededMp.....	262
EvTransRejectedByExternalNode.....	263
RxAnswerMsgQueueFullDiscard.....	263
RxAnswerUnexpected.....	264
RxAnswerUnexpectedAllMp.....	264

RxConnCeaError.....	265
RxConnFailMalFMsg.....	265
RxConnInvalidMsg.....	265
RxConnMpCongestionAnswerRsp.....	266
RxConnOversizedMsg.....	266
RxConnUnexpCex.....	267
RxConnUnexpDpx.....	267
RxConnUnexpDwx.....	268
RxDOCDiscardConn.....	268
RxDOCRejectConn.....	269
RxDOCRejectMp.....	269
RxMpCongestionDiscardMp.....	270
RxMpCongestionRejectMp.....	271
RxMsgsOCGreenPri0DiscardMp.....	271
RxMsgsOCYellowPri0DiscardMp.....	272
RxMsgsOCGreenPri1DiscardMp.....	273
RxMsgsOCYellowPri1DiscardMp.....	273
RxMsgsOCGreenPri2DiscardMp.....	274
RxMsgsOCYellowPri2DiscardMp.....	274
RxPduPoolEmptyDiscard.....	275
RxRoutableRejectMsgsMp.....	275
TmConnDegraded.....	276
TmConnEnabledNotAvail.....	277
TxAllConnQueueFullAnswerDiscard.....	277
TxAllConnQueueFullDiscard.....	278
TxConnUnavailDiscard.....	278
TxDtlsOversizedDiscard.....	279
TxReqMsgApplMismatch.....	279
TxReqMsgPerConnPtrMax.....	279
TxRequestEgressLoop.....	280
TxTestMessageDiscard.....	281
Diameter Ingress Transaction Exception measurements.....	281
RxAnsFwdFailed.....	284
RxArtRuleRejection.....	284
RxDecodeFailure.....	285
RxDiscardedMsgsPerConnControlsMp.....	285
RxDOCDiscardMp.....	285
RxDOCDiscardConn.....	286
RxMessageLooping.....	287
RxMpCongestionDiscard.....	287
RxNoRoutesFound.....	288

RxNoRulesFailure.....	289
RxPrtRuleRejection.....	290
RxRejectedAll.....	290
RxRejectedOther.....	291
RxRequestMsgQueueFullDiscard.....	291
RxRoutableDiscardedMsgsMp.....	292
RxTransactionTimeout.....	292
TxAllConnQueueFullRequestReject.....	293
TxLongTimeoutPtrListEmpty.....	293
TxPerConnQueueFullDiscard.....	294
TxPerConnQueueFullAnswerDiscard.....	295
TxPerConnQueueFullRequestDiscard.....	295
TxPtrListEmpty.....	296
TxRerouteQueueFullReject.....	296
TxSockFullDiscard.....	297
Diameter Ingress Transaction Performance measurements.....	298
RxConnRequestMsgs.....	299
TxAnswer1xxx.....	299
TxAnswer2xxx.....	300
TxAnswer3xxx.....	300
TxAnswer4xxx.....	300
TxAnswer5xxx.....	301
TxAnswerFailure.....	301
TxAnswerLocalNode.....	302
TxAnswerOther.....	302
Diameter Performance measurements.....	302
EvConnPrvSuccess.....	308
EvPerConnPtrQueueAvg.....	308
EvPerConnPtrQueuePeak.....	308
EvRemoteBusy.....	309
EvTransSuccessByExternalNode.....	309
RoutingMsgs.....	310
RxAcceptedRequestsMp.....	310
RxAcceptedMsgsPerConnControlsMp.....	311
RxAnswerExpectedAll.....	311
RxAnswerExpectedAllMp.....	311
RxAnswerExpectedRoutedMp.....	312
RxAnswerMsgsMp.....	312
RxConnAnswerMsgs.....	312
RxConnCea.....	313
RxConnCer.....	313

RxConnDpa.....	313
RxConnDpr.....	314
RxConnDwa.....	314
RxConnDwr.....	314
RxConnRequestMsgs.....	315
RxConnRoutableMsgs.....	315
RxDiam2DiamTransactionsCount.....	315
RxMaxMpsAcceptedMp.....	316
RxMaxMpsAcceptedRequestsMp.....	316
RxMsgSize.....	317
RxMsgSizeAvg.....	317
RxMsgSizePeak.....	318
RxMsgsOCPri0Mp.....	318
RxMsgsOCGreenPri0Mp.....	318
RxMsgsOCYellowPri0Mp.....	319
RxMsgsOCPri1Mp.....	319
RxMsgsOCGreenPri1Mp.....	319
RxMsgsOCYellowPri1Mp.....	320
RxMsgsOCPri2Mp.....	320
RxMsgsOCGreenPri2Mp.....	320
RxMsgsOCYellowPri2Mp.....	321
RxMsgsOCPri3Mp.....	321
RxMsgsOCPri0RatePeakMp.....	321
RxMsgsOCGreenPri0RatePeakMp.....	322
RxMsgsOCYellowPri0RatePeakMp.....	322
RxMsgsOCPri1RatePeakMp.....	322
RxMsgsOCGreenPri1RatePeakMp.....	323
RxMsgsOCYellowPri1RatePeakMp.....	323
RxMsgsOCPri2RatePeakMp.....	323
RxMsgsOCGreenPri2RatePeakMp.....	324
RxMsgsOCYellowPri2RatePeakMp.....	324
RxMsgsOCPri3RatePeakMp.....	324
RxOfferedMsgsMp.....	325
RxRequestMsgsMp.....	325
RxRequestNoErrors.....	325
RxRequestNoErrorsMp.....	326
RxRoutableAcceptedMsgsMp.....	326
RxRoutableMsgsMp.....	327
TmConnAvail.....	327
TmHoldTimeDownstreamMp.....	327
TmRemoteBusy.....	328

TmResponseTimeDownstream.....	329
TmResponseTimeDownstreamMp.....	329
TmResponseTimeUpstream.....	330
TxAnswerMsgsMp.....	330
TxConnAnswerMsgs.....	331
TxConnCea.....	331
TxConnCer.....	331
TxConnDpa.....	332
TxConnDpr.....	332
TxConnDwa.....	332
TxConnDwr.....	333
TxConnRequestMsgs.....	333
TxMsgSize.....	333
TxMsgSizeAvg.....	334
TxMsgSizePeak.....	334
TxRequestMsgsMp.....	335
TxRequestSuccessAllMP.....	335
Diameter Rerouting measurements.....	335
RxRerouteAnswerRsp.....	336
RxRerouteAnswerRspMp.....	337
TxRerouteAnswerResponse.....	337
TxRerouteAnswerTimeout.....	337
TxRerouteAttempts.....	338
TxRerouteConnFailure.....	338
TxRerouteSuccessSent.....	339
DM-IWF Exception measurements.....	339
TxDmiwfMtoDRoutingFail.....	340
TxDmiwfDtoMRoutingFail.....	341
EvDmiwfDtoMtimeout.....	342
EvDmiwfPtrPoolExceeded.....	342
RxDmiwfSS7MP AnswerUnexpected.....	343
EvMdIwfSvcCongest.....	343
EvMdIwfError.....	343
EvMdIwfConnExhausted.....	344
RxDiscOnError.....	344
EvDmIwfTxFwdFail.....	344
EvDmiwfMsgSizeExceeded.....	345
RxDmiwfTransactionsRejected.....	345
DM-IWF Performance measurements.....	346
RxDmiwfDtoMTransCnt.....	347
RxDmiwfDtoMTransRateAvg.....	347



RxDmiwfDtoMTransRatePeak.....	348
RxDmiwfMtoDTransCnt.....	348
RxDmiwfMtoDTransRateAvg.....	348
RxDmiwfMtoDTransRatePeak.....	349
RxDmiwfTransactionRspQueuePeak.....	349
RxDmiwfTransactionRspQueueAvg.....	350
EvDmiwfPtrPoolPeak.....	350
EvDmiwfPtrPoolAvg.....	350
RxDmiwfRequestMessage.....	351
RxDmiwfAnswerMessage.....	351
TxDmiwfRequestMessage.....	351
TxDmiwfAnswerMessage.....	352
RxDmiwfRequestMessageIwf.....	352
RxDmiwfAnswerMessageIwf.....	352
TxDmiwfRequestMessageIwf.....	352
TxDmiwfAnswerMessageIwf.....	353
Egress Throttle Group Performance measurements.....	353
TxEtgMsgsLocal.....	354
TxEtgMsgRatePeak.....	355
TxEtgMsgRateAvg.....	355
EvEtgRateCongestionOnset.....	355
EvEtgRateDiscardPri0.....	356
EvEtgRateDiscardPri1.....	357
EvEtgRateDiscardPri2.....	357
EvEtgPendingTransPeak.....	358
EvEtgPendingTransAvg.....	358
EvEtgPendingTransCongestionOnset.....	359
EvEtgPendingTransDiscardPri0.....	359
EvEtgPendingTransDiscardPri1.....	360
EvEtgPendingTransDiscardPri2.....	361
Egress Throttle List Performance measurements.....	361
TxEtlMsgRatePeak.....	362
TxEtlMsgRateAvg.....	363
EvEtlRateCongestionOnset.....	363
EvEtlRateDiscardPri0.....	364
EvEtlRateDiscardPri1.....	364
EvEtlRateDiscardPri2.....	365
EvEtlPendingTransPeak.....	366
EvEtlPendingTransAvg.....	366
EvEtlPendingTransCongestionOnset.....	367
EvEtlPendingTransDiscardPri0.....	367

EvEtlPendingTransDiscardPri1.....	368
EvEtlPendingTransDiscardPri2.....	368
Full Address Based Resolution (FABR) Application Exception measurements.....	369
RxFabrBlacklistedImsi.....	371
RxFabrBlacklistedMsisdn.....	371
RxFabrDecodeFailureResol.....	371
RxFabrInvalidImsiMcc.....	372
RxFabrResolFailAll.....	372
RxFabrResolFailCmdcode.....	373
RxFabrResolFailDpCongested.....	373
RxFabrResolFailImpiMatch.....	373
RxFabrResolFailImpuMatch.....	374
RxFabrResolFailImsiMatch.....	374
RxFabrResolFailMsisdnMatch.....	374
RxFabrResolFailNoAddrAvps.....	375
RxFabrResolFailNoValidAddr.....	375
RxFabrSrvNotiDpComAgentErrors.....	376
RxFabrTransactionsRejected.....	376
RxFabrUnkApplId.....	377
TxFabrDbConFail.....	377
TxFabrFwdFail.....	377
Full Address Based Resolution (FABR) Application Performance measurements.....	378
FabrAverageQueriesPerBundle.....	379
RxDpResponseTimeAvg.....	380
RxFabrAvgMsgSize.....	380
RxFabrBundledResponseEvents.....	380
RxFabrDpResponseMsgQueueAvg.....	381
RxFabrDpResponseMsgQueuePeak.....	381
RxFabrMsgs.....	382
RxFabrResolAll.....	382
RxFabrResolAllMp.....	382
RxFabrResolImpi.....	383
RxFabrResolImpu.....	383
RxFabrResolImsi.....	383
RxFabrResolMsisdn.....	384
RxFabrResolRateAvg.....	384
RxFabrResolRatePeak.....	384
RxFabrSrvNotiDpCongest.....	385
TxFabrAbandonRequest.....	385
TxFabrBundledQueryEvents.....	385
TxFabrFwdDefaultDest.....	386

TxFabrFwdNochange.....	386
TxFabrFwdSuccess.....	386
TxFabrMsgAttempt.....	387
GLA Exception measurements.....	387
RxGlaDecodeFailures.....	388
RxGlaDatabaseFailures.....	388
RxGlaDatabaseTimeouts.....	389
GLA Performance measurements.....	389
TxGlaSuccessMsgs.....	390
RxGlaResponseMsgQueuePeak.....	390
RxGlaResponseMsgQueueAvg.....	390
TxGlaSuccessMsgRatePeak.....	391
TxGlaSuccessMsgRateAvg.....	391
RxGlaFailureMsgs.....	392
IDIH measurements.....	392
EvIdihNumTtrsSent.....	392
EvIdihNumTtrsDeliveryFailed.....	393
TmIdihTraceSuspendedTime.....	393
TmIdihTraceThrottlingTime.....	393
EvIdihThrottlingTtrsDiscarded.....	394
EvInvalidIdihTraceAvp.....	394
EvNetworkTraceStarted.....	394
IP Front End (IPFE) Exception measurements.....	395
PcapDroppedPackets.....	395
ThrottledPackets.....	396
TsaBadDestPortSctp.....	396
TsaBadDestPortTcp.....	396
TsaUnexpctedSctp.....	397
TsaUnexpctedTcp.....	397
TxReject.....	397
TxRejectSctp.....	398
IP Front End (IPFE) Performance measurements.....	398
AsNewAssociations.....	399
AsNewAssociationsSctp.....	399
IpfeNewAssociations.....	400
IpfeNewAssociationsSctp.....	400
RxIpfeBytes.....	400
RxIpfeBytesSctp.....	401
RxIpfePackets.....	401
RxTsaBytes.....	401
RxTsaBytesSctp.....	402

RxTsaPackets.....	402
RxTsaPacketsSctp.....	402
TsaNewAssociations.....	403
TsaNewAssociationsSctp.....	403
TxAsBytes.....	403
TxAsBytesSctp.....	404
TxAsPackets.....	404
TxAsPacketsSctp.....	404
Link Exception measurements.....	405
EvLnkActAckTO.....	406
RxLnkUnsollInactAck.....	406
RxLnkM3uaERROR.....	407
RxLnkInvalidM3ua.....	407
Link Performance measurements.....	408
TxLnkMSU.....	408
RxLnkMSU.....	409
TxLnkMSUOctets.....	409
RxLnkMSUOctets.....	410
Link Set Performance measurements.....	410
TxLnkSetMSU.....	411
RxLnkSetMSU.....	411
TxLnkSetMSUOctets.....	411
RxLnkSetMSUOctets.....	412
Link Set Usage measurements.....	412
TmM3RLLinksetUnavail.....	412
Link Usage measurements.....	413
TmLnkMOOS.....	414
TmLnkOOS.....	415
TmLnkAvailable.....	415
EvLnkManClose.....	416
MD-IWF Exception Measurements.....	416
TxMdIwfSs7TransmitFailure.....	418
RxMdIwfOrphanMapResponse.....	418
EvMdIwfMapResponseTimeout.....	419
RxMdIwfDiamNon2xxxAnswer.....	419
RxMdIwfOrphanDiamAnswer.....	419
EvMdIwfDiamAnswerTimeout.....	420
RxMdIwfDiamAnswerUnexpectedDaMp.....	420
TxMdIwfFailComAgentEnqueue.....	421
RxMdIwfComAgentError.....	421
RxMdIwfDiamPduPoolEmpty.....	421

EvMdlwflnterwrkFail.....	422
EvMdlwflnterwrkFailAddrTrans.....	422
EvMdlwflnterwrkFailMsgTrans.....	423
TxMdlwflDiamEdlEncodeFailure.....	423
EvMdlwflnterwrkFailCongest.....	424
EvMdlwflnterwrkFailFarEndResponse.....	424
EvMdlwflnterwrkFailDsrInitiated.....	424
EvMdlwflnterwrkFailSysError.....	425
EvMdlwflMessageFailResExh.....	425
EvMdlwflTransRejectByDiamExtNode.....	426
MD-IWF Performance measurements.....	426
RxMdlwflSS7Msg.....	428
TxMdlwflSS7Msg.....	429
RxMdlwflMapRequestMsg.....	429
TxMdlwflMapRequestMsg.....	430
RxMdlwflMapResponseMsg.....	430
TxMdlwflMapResponseMsg.....	430
RxMdlwflDiamMsg.....	431
TxMdlwflDiamMsg.....	431
RxMdlwflDiamRequestMsg.....	431
RxMdlwflDiamAnswerMsg.....	432
TxMdlwflDiamRequestMsg.....	432
TxMdlwflDiamAnswerMsg.....	432
EvMdlwflnterwrkAttempt.....	433
EvMdlwflnterwrkSuccess.....	433
RxMdlwflIngressMsgCount.....	434
RxMdlwflIngressMsgRateAvg.....	434
RxMdlwflIngressMsgRatePeak.....	434
RxMap2DiamTransMsgCount.....	435
RxMap2DiamTransMsgRateAvg.....	435
RxMap2DiamTransMsgRatePeak.....	436
RxDiam2MapTransMsgCount.....	436
RxDiam2MapTransMsgRateAvg.....	436
RxDiam2MapTransMsgRatePeak.....	437
RxMdlwflDiamTransMsgQueuePeak.....	437
RxMdlwflDiamTransMsgQueueAvg.....	438
RxMdlwflMapTransMsgQueuePeak.....	438
RxMdlwflMapTransMsgQueueAvg.....	438
RxMdlwflDampInterfaceMsgQueuePeak.....	439
RxMdlwflDampInterfaceMsgQueueAvg.....	439
EvMdlwflDiam2MapPtrUtilPeak.....	439

EvMdIwfDiam2MapPtrUtilAvg.....	440
EvMdIwfMap2DiamPtrUtilPeak.....	440
EvMdIwfMap2DiamPtrUtilAvg.....	440
TmMdIwfMap2DiamPtrHoldTimeAvg.....	441
TmMdIwfDiam2MapPtrHoldTimeAvg.....	441
RxMdIwfMapTcBegin.....	441
EvMdIwfTransSuccessByDiamExtNode.....	442
MD-IWF SS7 Performance measurements.....	442
RxMdIwfMapRequestMsgByOpcode.....	443
RxMdIwfMapResponseMsgByOpcode.....	443
TxMdIwfMapRequestMsgByOpcode.....	443
TxMdIwfMapResponseMsgByOpcode.....	444
MD-IWF Diam Performance Measurements.....	444
RxMdIwfDiamRequestMsgByCommandCode.....	445
RxMdIwfDiamAnswerMsgByCommandCode.....	445
TxMdIwfDiamRequestMsgByCommandCode.....	445
TxMdIwfDiamAnswerMsgByCommandCode.....	446
Message Copy measurements.....	446
DASCopyAnswerRx.....	447
DASCopyDiscarded.....	448
DASCopyFailureMCCSNotProvisioned.....	448
DASCopyFailureMPCong.....	449
DASCopyFailurePeerApplIdUnsup.....	449
DASCopyFailureSizeExceeded.....	450
DASCopyFailureRLNotProv.....	450
DASCopyRetransmits.....	450
DASCopyRetransmitsExceeded.....	451
DASCopyTx.....	451
DASCopyValidAnswer.....	452
TxMsgCopyQueueAve.....	452
TxMsgCopyQueueFullDiscard.....	453
TxMsgCopyQueuePeak.....	453
Message Priority measurements.....	454
EvConnPeerUnsuppMp.....	455
EvConnUnexpMp.....	456
RxMsgPri0ApplRule.....	456
RxMpMsgPri0.....	457
RxMsgPri0PeerRule.....	457
RxMsgPri1ApplRule.....	457
RxMpMsgPri1.....	458
RxMsgPri1PeerRule.....	458

RxMsgPri2ApplRule.....	458
RxMpMsgPri2.....	459
RxMsgPri2PeerRule.....	459
Message Processor (MP) Performance measurements.....	459
EvDiameterProcessAvg.....	463
EvDiameterProcessPeak.....	464
EvLongTimeoutPtrPoolAvg.....	464
EvLongTimeoutPtrPoolPeak.....	465
EvMemoryCongestionLevel1Entered.....	466
EvMemoryCongestionLevel2Entered.....	466
EvMemoryCongestionLevel3Entered.....	467
EvMpCongestionEntered.....	468
EvMpCongestionLevel1Entered.....	468
EvMpCongestionLevel2Entered.....	469
EvMpCongestionLevel3Entered.....	469
EvMpDangerOfCongestionEntered.....	470
EvPduPoolAvg.....	471
EvPduPoolPeak.....	471
EvPtrListAvg.....	472
EvPtrListPeak.....	472
EvStasisModeMaxConnsExceeded.....	473
EvStasisModeMpCongestion.....	474
RxAnswerMsgQueueAvg.....	474
RxAnswerMsgQueuePeak.....	474
RxMsgRateAvgMp.....	475
RxMsgRatePeakMp.....	475
RxRequestMsgQueueAvg.....	476
RxRequestMsgQueuePeak.....	476
TmAnswerTimeAvg.....	477
TmAnswerTimePeak.....	478
TmMemoryCongestionLevel1.....	478
TmMemoryCongestionLevel2.....	479
TmMemoryCongestionLevel3.....	480
TmMpCongestion.....	481
TmMpCongestionLevel1.....	482
TmMpCongestionLevel2.....	482
TmMpCongestionLevel3.....	483
TmMpDangerOfCongestion.....	484
TmRequestTimeAvg.....	485
TmRequestTimePeak.....	486
TxAllConnQueueAvg.....	486

TxAllConnQueuePeak.....	487
TxRerouteQueueAvg.....	487
TxRerouteQueuePeak.....	488
OAM.ALARM measurements.....	488
OAM.SYSTEM measurements.....	489
OC-DRA Diameter Usage measurements.....	490
RxOcdraMsgRateAvg.....	491
RxOcdraMsgRatePeak.....	492
RxGyRoMsgsReceivedPerCmd.....	492
RxGyRoReqRelayedPerCmd.....	493
RxGyRoAnsRelayedPerCmd.....	493
RxGyRoAns2xxxFromPeerPerCmd.....	494
TmGyRoSessionDuration.....	494
TmGyRoSessionRefresh.....	495
OC-DRA Diameter Exception measurements.....	496
RxPcaTransactionsRejected.....	498
RxGyRoReqFailedToRelayPerCmd.....	499
RxGyRoAnsNon2xxxFromPeerPerCmd.....	500
RxGyRoAnsDiscardedDrlQueueFullPerCmd.....	501
TxGyRoAnsGenByDrlPerCmd.....	501
TxGyRoAnsGenByOcdraPerCmd.....	502
TxGyRoAnsGenPerErrCode.....	502
TxGyRoCcrInitAnsGenPerErrCode.....	503
TxGyRoCcrUpdateAnsGenPerErrCode.....	504
TxGyRoCcrTermAnsGenPerErrCode.....	505
TxGyRoCcrEventAnsGenPerErrCode.....	505
TxGyRoRarAnsGenPerErrCode.....	506
TxGyRoUnkCmdAnsGenPerErrCode.....	507
TxPcaAnsGenPerErrCode.....	508
RxPcaAnsRelayedUnsupportedAppId.....	508
RxOcdraReqNoCcRequestType.....	509
RxOcdraUnsupportedCcRequestType.....	509
RxOcdraStackEventDiscardedCaFailure.....	510
RxOcdraStackEventDiscardedUnsupported.....	510
RxGyRoCcrInitNoMsisdn.....	511
RxGyRoCcrInitNoDestHostMultOcsPoolMode.....	511
RxGyRoCcrEventNoDestHostMultOcsPoolMode.....	512
RxGyRoInSessionReqNoDestHost.....	513
RxOcdraSessionUnkToPeer.....	513
RxOcdraAnsweringOcsNotConfigured.....	514
OC-DRA Congestion Exception measurements.....	514



RxGyRoReqDiscardedCongestionPerCmd.....	515
P-DRA Diameter Usage measurements.....	515
RxPdraCcrInitMsgs.....	518
RxPdraCcrUpdateMsgs.....	518
RxPdraCcrTerminateMsgs.....	518
RxCcrInitNoImsiMsgs.....	519
RxPdraRarGxMsgs.....	519
RxPdraRarRxMsgs.....	519
RxPdraAarMsgs.....	520
RxPdraStrMsgs.....	520
PdraGxTopoHidingApplied.....	521
PdraRxTopoHidingApplied.....	521
RxPdraMsgRateAvg.....	521
RxPdraMsgRatePeak.....	522
RxPdra5002FromPcrf.....	522
RxPdra5002FromPolicyClient.....	522
TxPdraGxRarRelease.....	523
RxPdraGxpCcrInitMsgs.....	523
RxPdraGxpCcrUpdateMsgs.....	524
RxPdraGxpCcrTerminateMsgs.....	524
PdraGxpTopoHidingApplied.....	524
RxPdraFindingBindingSuccess.....	525
RxPdraRarGxpMsgs.....	525
RxBindCapApn2PcrfPool.....	525
RxBindCap2PcrfSubPool.....	526
RxBindCapPcrfPool2Prt.....	526
RxPdraAsrMsgs.....	527
TxPdraGxRarQuery.....	527
RxSuspectBindingRuleMatchIncrCount.....	528
RxSuspectBindingRuleMatchRmvImt.....	528
TmImsiBindingDuration.....	528
TmGxSessionDuration.....	529
TmGxSessionRefresh.....	530
TmGxxSessionDuration.....	530
TmGxxSessionRefresh.....	531
TmRxSessionDuration.....	531
TmRxSessionRefresh.....	532
TmGxPrimeSessionDuration.....	533
TmGxPrimeSessionRefresh.....	534
TmS9SessionDuration.....	534
TmS9SessionRefresh.....	535

P-DRA Diameter Exception measurements.....	536
RxPdraRequestProtocolErr.....	537
TxCcxMsgDiscardedDueToDrlQueueFull.....	538
TxRaxMsgDiscardedDueToDrlQueueFull.....	538
TxAaxMsgDiscardedDueToDrlQueueFull.....	538
TxStxMsgDiscardedDueToDrlQueueFull.....	539
TxPdraAnswersGeneratedForPsbrErrResp.....	539
TxPdraAnswersGeneratedForDiameterErr.....	539
TxPdraErrAnsGeneratedCAFailure.....	540
RxStackEventDiscardedCAFailure.....	540
TxAsxMsgDiscardedDueToDrlQueueFull.....	541
TxPdraAnswersGeneratedConfigErr.....	541
RxPcaTransactionsRejected.....	542
TxGxpCcxMsgDiscardedDrlQueueFull.....	543
RxBindCapPcrfPoolNotMapped.....	543
RxBindCapUnknownApn.....	544
RxBindCapMissingApn.....	544
RxBindDepUnknownApn.....	545
RxBindDepMissingApn.....	545
RxBindCapUnknownPcrf.....	546
P-DRA Congestion Exception measurements.....	546
RxCcrMsgDiscardedDueToCongestion.....	547
RxRarMsgDiscardedDueToCongestion.....	547
RxAarMsgDiscardedDueToCongestion.....	548
RxStrMsgDiscardedDueToCongestion.....	548
RxGxpCcrMsgDiscardedDueToCongestion.....	548
RxAsrMsgDiscardedDueToCongestion.....	549
Peer Node Performance measurements.....	549
RxPeerAnswers.....	549
RxPeerRequests.....	550
TxPeerAnswers.....	550
TxPeerRequests.....	550
Peer Routing Rules measurements.....	551
RxPrtSelected.....	552
RxRuleDuplicatePriority.....	552
RxRuleFwdFailActionSendAns.....	553
RxRuleFwdFailAll.....	553
RxRuleSelected.....	554
TxMsgPrtMarkedForCpy.....	554
Route List measurements.....	554
RxRouteListFailure.....	555

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

SbrBindTermByAscSess.....	576
SbrAltKeyCreated.....	576
SbrAltKeyDel.....	576
SbrMaxBindingAgeAtTerm.....	577
SbrAvgBindingAgeAtTerm.....	577
SbrAvgBindingDbRead.....	577
SbrMaxBindingDbRead.....	578
SbrAvgBindingDbWrite.....	578
SbrMaxBindingDbWrite.....	578
SbrLockCollisions.....	579
TmSbrProcessingTime.....	579
SbrEarlySlaveBindingsCreated.....	580
SbrFinalBindingsFollowed.....	580
SbrSlavePollingContinue.....	581
SbrSlavePollingRouteToPcrf.....	581
SbrPolicyBindingRecsAvg.....	582
SbrPolicyBindingRecsPeak.....	582
EvSuspectBindingEventIgnored.....	582
EvSuspectBindingEventCountReset.....	583
EvSuspectBindingRemoved.....	583
SBR Binding Exception measurements.....	584
SbrCreateBindDbErr.....	584
SbrUpdateBindDbErr.....	585
SbrRemoveBindDbErr.....	585
SbrCreateAltKeyDbErr.....	585
SbrRemoveAltKeyDbErr.....	586
SbrFindBindDbErr.....	586
SbrEarlyTooLongSrRemoved.....	586
SbrSlavePollingFail.....	587
SbrSuspectSrRemoved.....	588
SBR Session Performance measurements.....	588
SbrSessionsCreated.....	590
SbrSessionsRefresh.....	590
SbrSessionsDeleted.....	590
SbrAvgSessionAgeTermPerAPN.....	591
SbrMaxSessionAgeTermPerAPN.....	591
SbrAvgSessionDbRead.....	592
SbrMaxSessionDbRead.....	592
SbrAvgSessionDbWrite.....	592
SbrMaxSessionDbWrite.....	593
SbrPendingRarLockCollisions.....	593

SbrPolicySessionRecsAvg.....	593
SbrPolicySessionRecsPeak.....	594
SbrOcSessionsCreated.....	594
SbrOcSessionsRefreshed.....	594
SbrOcSessionsRemoved.....	595
SbrAvgOcSessionDbReads.....	595
SbrMaxOcSessionDbReads.....	595
SbrAvgOcSessionDbWrites.....	596
SbrMaxOcSessionDbWrites.....	596
SbrAvgOcSessionAgeTermPerApn.....	596
SbrMaxOcSessionAgeTermPerApn.....	597
SbrOcSessionRecsAvg.....	597
SbrOcSessionRecsPeak.....	598
RxInvokeSisPerRarType.....	598
TxInvokeSisResultPerResultCode.....	598
SBR Session Exception measurements.....	599
SbrCreateSessDbErr.....	600
SbrRefreshSessDbErr.....	600
SbrRemSessDbErr.....	600
SbrFindSessDbErr.....	601
SbrRemSessRarAttempts.....	601
SbrCreateOcSessionDbErr.....	601
SbrFindOcSessionDbErr.....	602
SbrOcSessionNotFound.....	602
SbrRefreshOcSessionDbErr.....	603
SbrRemoveOcSessionDbErr.....	603
TxPendingRarDeletedExceedMax.....	603
Server Exception measurements.....	604
EvError.....	604
EvVital.....	604
Server M3UA Exception measurements.....	605
TxM3uaERROR.....	606
RxM3uaERROR.....	606
M3UAShutdownQueueFull.....	607
SCTPAggrQueueFull.....	607
ANSIDiscardsNoPDUBuffer.....	608
ITUDiscardsNoPDUBuffer.....	608
Server M3UA Performance measurements.....	609
TxNonDataMsg.....	610
RxNonDataMsg.....	610
TxNonDataOctets.....	611

RxNonDataOctets.....	612
M3UAStackQueuePeak.....	612
M3UAStackQueueAvg.....	613
SCTPAggrQueuePeak.....	613
SCTPAggrQueueAvg.....	614
Server M3UA Usage measurements.....	615
TxASPSM.....	615
RxASPSM.....	616
TxASPTM.....	616
RxASPTM.....	617
TxDAUD.....	617
RxSSNM.....	617
RxM3uaNOTIFY.....	618
Server MTP3 Exception measurements.....	618
TxM3RLDestUnknown.....	619
TxM3RLDestUnavail.....	620
TxM3RLDestCong.....	620
TxM3RLBufOverflow.....	620
RxM3RLInvalidDPC.....	621
RxM3RLInvalidSI.....	621
RxM3RLInvalidNI.....	622
RxM3RLBufOverflow.....	622
M3RLStackQueueFull.....	622
M3RLNetMgtQueueFull.....	623
Server MTP3 Performance measurements.....	623
TxM3RLDataMsgs.....	624
RxM3RLDataMsgs.....	624
M3RLStackQueuePeak.....	625
M3RLStackQueueAvg.....	625
M3RLNetMgtQueuePeak.....	626
M3RLNetMgtQueueAvg.....	626
Server Resource Usage measurements.....	627
SS7ProcessPeak.....	628
SS7ProcessAvg.....	628
SS7RxMsgRatePeak.....	629
SS7RxMsgRateAvg.....	629
ItuiPDUUtilPeak.....	630
ITUPDUUtilAvg.....	630
ANSIPDUUtilPeak.....	631
AnsiPDUUtilAvg.....	632
Server SCCP Exception measurements.....	632

EvError.....	635
EvVital.....	635
RxMaxTpsExceeded.....	635
RxMPCongestion.....	636
RxSCCPInvalidDPC.....	637
RxSCCPInvalidSSN.....	637
RxSCCPInvalidMsg.....	637
RxSCCPInvalidHop.....	638
RxSCCPInvalidClass.....	638
RxSCCPInvalidGTI.....	638
RxSCCPReassFAIL.....	639
RxSCCPReassInternalFail.....	639
RxSCCPReassOOSFail.....	639
RxSCCPReassTEp.....	640
RxSCCPSegmentOOS.....	640
RxSCCP\$gmntsPartReassFAIL.....	641
RxSCCPUnavailSSN.....	641
RxSCCPUnknownSSN.....	641
RxSCCPXudtInvSgmnt.....	642
SCCPGTTFailure.....	642
SCCPStackQueueFull.....	642
SCMGErrors.....	643
TxSCCPCongestion.....	643
TxSCCPInvUserMsgs.....	643
TxSCCPInvalidDPC.....	644
TxSCCPInvalidSSN.....	644
TxSCCPSegmentFAIL.....	644
TxSCCPUnavailDPC.....	645
TxSCCPUnavailSSN.....	645
TxSCCPUnknownDPC.....	646
TxSCCPUnknownSSN.....	646
Server SCCP Performance measurements.....	646
TxSCCPMsgs.....	648
RxSCCPMsgs.....	648
TxSCCPUserMsgs.....	648
TxSCMGMMsgs.....	649
TxMsgRatePeak.....	649
TxMsgRateAvg.....	650
RxSCCPUserMsgs.....	650
RxSCCPUserNoticeMsgs.....	651
RxSCMGMMsgs.....	651

SCCPStackQueuePeak.....	652
SCCPStackQueueAvg.....	652
TxSCCPLargeMsgs.....	653
TxSCCPSegmentsPerMsg.....	653
TxSCCPSegmentSUCC.....	653
RxSCCPSgmntXudtMsgs.....	654
RxSCCPReassSUCC.....	654
RxSCCPSgmntReassPerMsg.....	655
RxSCCPRtGtFrwdAppl.....	655
RxSCCPRtGtXudtSgmnt.....	655
RxSCCPRtSsnXudtSgmnt.....	656
RxSCCPSegmentSrvcMsg.....	656
RxSCCPSgmntsReassSUCC.....	656
Server TCAP Exception measurements.....	657
TCAPDialogueTimeout.....	658
TCAPAbrtPeer.....	659
TCAPAbrtTcu.....	659
TCAPAbrtPeerErr.....	659
TCAPAbrtTcuErr.....	660
TCAPDialogueTblFull.....	660
TCAPStackQueueFull.....	661
TCAPOpCancelTcu.....	661
TCAPOpTimeout.....	661
TCAPRetErrPeer.....	662
TCAPRetErrTcu.....	662
TCAPRejPeer.....	663
TCAPRejTcu.....	663
TCAPRejPeerErr.....	663
TCAPRejTcuErr.....	664
TCAPComponentTblFull.....	664
Ss7DeserializationFail.....	665
Server TCAP Performance measurements.....	665
RxTCAPDialogues.....	666
TxTCAPDialogues.....	666
TxTCAPOperations.....	666
TCAPStackQueueAvg.....	667
TCAPStackQueuePeak.....	667
TCAPDialogueTblAvg.....	667
TCAPDialogueTblPeak.....	668
TCAPComponentTblAvg.....	668
TCAPComponentTblPeak.....	669



Session Binding Repository (SBR) Exception measurements.....	669
Sbr.TxError .....	670
Sbr.StackQueueFull.....	671
Sbr.TxShedCreates.....	671
Sbr.TxShedWrites.....	672
Sbr.TxShedReads.....	672
Sbr.TxShedAll.....	672
Sbr.TxShedCreatesTot.....	673
Sbr.TxShedWritesTot.....	673
Sbr.TxShedReadsTot.....	673
Sbr.TxShedAllTot.....	674
Session Binding Repository (SBR) Performance measurements.....	674
Sbr.RxCreate.....	676
Sbr.RxUpdate.....	676
Sbr.RxRead.....	676
Sbr.RxDelete.....	677
Sbr.RxStatus.....	677
Sbr.TxSuccess .....	677
Sbr.RxReqRatePeak .....	678
Sbr.RxServTimeAvg .....	678
Sbr.RxServTimePeak .....	678
Sbr.EvStaleRecRemoved.....	679
Sbr.EvCreateUpdateMod.....	679
Sbr.EvAvgSessionAge .....	679
Sbr.RxReqRateAvg .....	680
Sbr.EvSchdStaleRec.....	680
Sbr.EvStaleRecRevived .....	680
Sbr.EvMostlyStaleSessPartition .....	681
Sbr.EvAvgSessionAgePartition .....	681
Sbr.RxIngressMsgQueuePeak.....	681
Sbr.RxIngressMsgQueueAvg.....	682
SS7 Exception Measurements.....	682
Ss7TxFailedCA.....	682
Ss7TxMpUnkDiscard.....	683
SS7 Performance Measurements.....	683
Ss7TxSuccCA.....	684
Transport Exception measurements.....	684
RxTrFarEndClose.....	685
EvTrManClose.....	686
EvTrNoRespClose.....	686
EvTrCnxFail.....	687

TxTrSendFail.....	688
RxTrRecvFailed.....	689
EvTrSockInitFail.....	689
TmSingleTransQueueFull.....	690
EvSctpAdjPToDwn.....	690
EvSctpTransRej.....	691
Transport Usage measurements.....	692
EvTrCnxSuccess.....	693
TmTrEnaNotUp.....	693
RxTmSctpBufAvg.....	694
RxTmSctpBufPeak.....	694
Transport Performance measurements.....	695
TxTrOctets.....	696
RxTrOctets.....	696
TmSingleTransQueuePeak.....	697
TmSingleTransQueueAvg.....	698
SctpTransPeerCWNDPeak.....	698
SctpTransPeerCWNDAvg.....	699
SctpTransPeerSRTTPeak.....	699
SctpTransPeerSRTTAvg.....	700
SctpTransUnAckedDataPeak.....	700
SctpTransUnAckedDataAvg.....	700
SctpTransRTOPeak.....	701
SctpTransRTOAvg.....	701
Topology Hiding Performance measurements.....	702
TxPathTopology.....	703
RxPathTopology.....	703
EvHssTopology.....	704
EvMmeTopology.....	704
EvMmeTopologyException.....	704
EvHssTopologyException.....	705
EvPcrfTopology.....	705
EvPcrfTopologyMp.....	705
EvPcrfTopologyExceptionMp.....	706
EvPcrfTopologyException.....	706
EvAfTopology.....	707
EvAfTopologyMp.....	707
EvAfTopologyExceptionMp.....	707
EvAfTopologyException.....	708
TxPathTopologyMp.....	708
RxPathTopologyMp.....	708

EvHssTopologyMp.....	709
EvMmeTopologyMp.....	709
EvMmeTopologyExceptionMp.....	709
EvHssTopologyExceptionMp.....	710

## **Appendix A: Policy DRA Error Resolution Procedures.....711**

Error Code 500.....	712
Error Code 501.....	712
Error Code 502.....	713
Error Code 2xx/3xx.....	714
Error Code 510.....	714
Error Code 511.....	715
Error Code 512.....	716
Error Code 513.....	716
Error Code 503.....	717
Error Code 505.....	718
Error Code 507.....	719
Error Code 508.....	720
Error Code 520.....	720
Error Code 521.....	721
Error Code 504.....	721
Error Code 509.....	722
Error Code 305.....	723
Error Code 305.....	723
Error Code 522.....	724
Error Code 523.....	724
Error Code 525.....	725
Error Code 506.....	726
Error Code 530.....	726
Error Code 531.....	727

## **Glossary.....728**

# List of Figures

Figure 1: Oracle System Login.....	55
Figure 2: Paginated table .....	57
Figure 3: Scrollable table.....	58
Figure 4: Form page.....	58
Figure 5: Tabbed pages.....	59
Figure 6: Tabbed pages.....	59
Figure 7: Report output.....	60
Figure 8: Sorting a Table by Column Header.....	60
Figure 9: Clear Field Control X.....	61
Figure 10: Optional Layout Element Toolbar.....	62
Figure 11: Automatic Error Notification.....	62
Figure 12: Examples of Filter Styles.....	63

# List of Tables

Table 1: Admonishments.....	43
Table 2: User interface elements.....	48
Table 3: Main Menu Options.....	49
Table 4: Main Menu icons.....	56
Table 5: Example Action buttons.....	61
Table 6: Submit buttons.....	61
Table 7: Filter control elements.....	63
Table 8: Data Export Elements.....	67
Table 9: Active Tasks Elements.....	70
Table 10: Active Tasks Report Elements.....	73
Table 11: Scheduled Tasks Elements.....	74
Table 12: Measurements Elements.....	80
Table 13: Schedule Measurement Data Export Elements.....	81
Table 14: Address Resolution Exception Measurement Report Fields.....	83
Table 15: Address Resolution Performance Measurement Report Fields.....	93
Table 16: Application Routing Rule Measurements.....	101
Table 17: Association Exception Measurement Report Fields.....	103
Table 18: Association Performance Measurement Report Fields.....	113
Table 19: Association Usage Measurement Report Fields.....	115
Table 20: CPA Exception Measurement Report Fields.....	118
Table 21: CPA Performance Measurement Report Fields.....	124
Table 22: CPA Session DB Measurement Report Fields.....	130

Table 23: Communication Agent Exception Measurement Report Fields.....	136
Table 24: Communication Agent Performance Measurement Report Fields.....	166
Table 25: CAPM Measurement Report Fields.....	184
Table 26: Connection Congestion Measurement Report Fields.....	190
Table 27: Connection Exception Measurement Report Fields.....	198
Table 28: Connection Performance Measurement Report Fields.....	206
Table 29: DSR Application Exception Measurement Report Fields.....	216
Table 30: DSR Application Performance Measurement Report Fields.....	224
Table 31: Diameter Egress Transaction Measurement Report Fields.....	247
Table 32: Diameter Exception Measurement Report Fields.....	253
Table 33: Diameter Ingress Transaction Exception Measurement Report Fields.....	281
Table 34: Diameter Ingress Transaction Performance Measurement Report Fields.....	298
Table 35: Diameter Performance Measurement Report Fields.....	303
Table 36: Diameter Rerouting Measurement Report Fields.....	336
Table 37: Diameter Egress Throttle Group Performance Measurement Report Fields.....	353
Table 38: Diameter Egress Throttle List Performance Measurement Report Fields.....	361
Table 39: FABR Application Exception Measurement Report Fields.....	369
Table 40: DSR Application Performance Measurement Report Fields.....	378
Table 41: GLA Exception Measurement Report Fields.....	387
Table 42: GLA Performance Measurement Report Fields.....	389
Table 43: IPFE Exception Measurement Report Fields.....	395
Table 44: IPFE Performance Measurement Report Fields.....	398
Table 45: Link Exception Measurement Report Fields.....	405
Table 46: Link Performance Measurement Report Fields.....	408
Table 47: Link Set Performance Measurement Report Fields.....	410

Table 48: Link Set Usage Measurement Report Fields.....	412
Table 49: Link Usage Measurement Report Fields.....	413
Table 50: MD-IWF Exception Measurements.....	417
Table 51: MD-IWF Performance Measurements.....	426
Table 52: MD-IWF SS7 Performance Measurements.....	442
Table 53: MD-IWF Diam Performance Measurements.....	444
Table 54: Message Copy Measurement Report Fields.....	446
Table 55: Message Priority Measurement Report Fields.....	454
Table 56: MP Performance Measurement Report Fields.....	460
Table 57: OAM Alarm measurements.....	488
Table 58: OAM System measurements.....	489
Table 59: OC-DRA Diameter Usage Measurement Report Fields.....	491
Table 60: OC-DRA Diameter Exception Measurement Report Fields.....	496
Table 61: OCP-DRA Congestion Exception Measurement Report Fields.....	515
Table 62: P-DRA Diameter Usage Measurement Report Fields.....	515
Table 63: P-DRA Diameter Exception Measurement Report Fields.....	536
Table 64: P-DRA Congestion Exception Measurement Report Fields.....	546
Table 65: Peer Routing Rules Measurement Report Fields.....	549
Table 66: Peer Routing Rules Measurement Report Fields.....	551
Table 67: Route List Measurement Report Fields.....	555
Table 68: Routing Usage Measurement Report Fields.....	557
Table 69: SBR Audit Measurement Report Fields.....	559
Table 70: SBR Binding Performance Measurement Report Fields.....	573
Table 71: SBR Binding Exception Measurement Report Fields.....	584
Table 72: SBR Session Performance Measurement Report Fields.....	588

Table 73: SBR Session Exception Measurement Report Fields.....	599
Table 74: Server M3UA Exception Measurement Report Fields.....	605
Table 75: Server M3UA Performance Measurement Report Fields.....	609
Table 76: Server M3UA Usage Measurement Report Fields.....	615
Table 77: Server MTP3 Exception Measurement Report Fields.....	618
Table 78: Server MTP3 Performance Measurement Report Fields.....	623
Table 79: Server Resource Usage Measurement Report Fields.....	627
Table 80: Server SCCP Exception Measurement Report Fields.....	632
Table 81: Server SCCP Performance Measurement Report Fields.....	646
Table 82: Server TCAP Exception Measurement Report Fields.....	657
Table 83: Server TCAP Performance Measurement Report Fields.....	665
Table 84: SBR Exception Measurement Report Fields.....	669
Table 85: SBR Performance Measurement Report Fields.....	674
Table 86: SS7 Exception Measurement Report Fields.....	682
Table 87: SS7 Performance Measurement Report Fields.....	683



# Chapter 1

## Introduction

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### Topics:

- [Overview.....42](#)
- [Scope and Audience.....42](#)
- [Manual Organization.....42](#)
- [Documentation Admonishments.....42](#)
- [Related Publications.....43](#)
- [Locate Product Documentation on the Oracle Technology Network Site.....43](#)
- [Customer Training.....44](#)
- [My Oracle Support \(MOS\).....44](#)
- [Emergency Response.....44](#)

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 Technology Network 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 Technology Network (OTN) site. See [Locate Product Documentation on the Oracle Technology Network Site](#) for more information.

## Locate Product Documentation on the Oracle Technology Network Site

Oracle customer documentation is available on the web at the Oracle Technology Network (OTN) 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 Technology Network 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; look under “Network Session Delivery & Control Infrastructure”.
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**, 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.....47](#)
- [Missing Main Menu options.....53](#)
- [Common Graphical User Interface Widgets.....54](#)

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

## 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
- 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

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

Note that the DSR System OAM Main Menu options will 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 that 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>• <b>Page Title Area:</b> Occupies the top of the work area. It displays the title of the current page being displayed, the date and time, and includes a link to context-sensitive help.</li> <li>• <b>Page Control Area:</b> Is located below the Page Title Area, and is used to show controls for the Page Area (this area is optional). When available for 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>• <b>Page Area:</b> Occupies the bottom of the work area. This area is used for all types of operations. It</li> </ul>



Element	Location	Function
		displays all options, status, data, file, and query screens. Information or error messages are displayed in a message box at the top of this section. A horizontal and/or vertical scroll bar is provided when the displayed information exceeds the page area of the screen. When a user first logs in, this area displays the application user interface page. The page displays a user-defined welcome message. To customize the message, see <a href="#">Customizing the Splash Page Welcome 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 would 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> </ul>

Menu Item	Function
	<ul style="list-style-type: none"> <li>• Network Routes</li> <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	Allows the user to view, export, and generate reports from security log history.
Status & Manage	Allows the user to monitor the individual and collective status of Network Elements, Servers, HA functions, Databases, KPIs, system Processes, and Tasks. The user can perform actions required for server maintenance, database management, data, and ISO file management.
Measurements	Allows the user to view and export measurement data.
Transport Manager (optional)	On the SOAM, allows the user to configure adjacent nodes, configuration sets, or transports. A maintenance option allows the user to perform enable, disable, and block actions on the transport entries.
Communication Agent (optional)	Allows the user to configure Remote Servers, Connection Groups, and Routed Services. The user can perform actions to enable, disable, and block connections. Also allows the user to monitor the status of Connections, Routed Services, and HA Services.
SS7/Sigtran (optional)	On the SOAM, allows the user to configure various users, groups, remote signaling points, links, and other items associated with SS7/Sigtran; perform maintenance and troubleshooting activities; and provides a command line interface for bulk loading SS7 configuration data.
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 that is configured on that OAM.</p>

Menu Item	Function
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 configuration and Egress Throttle List</li> <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)	<p>Allows the user to configure the following Range-Based Address Resolution (RBAR) settings:</p> <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> <p>This is accessible from the SOAM only.</p>
FABR (Full Address Based Resolution) (optional)	<p>Allows the user to configure the following Full Address Based Resolution (FABR) settings:</p> <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> <p>This is accessible from the SOAM only.</p>
Policy and Charging (optional)	<p>On the NOAMP, 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>• SBR Databases</li> <li>• Access Point Names</li> <li>• SBR Database Resizing Plans</li> <li>• SBR Data Migration Plans</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> </ul>

Menu Item	Function
	<ul style="list-style-type: none"> <li>• Alarm Settings</li> <li>• Congestion Options</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>• Policy Database Query</li> <li>• SBR Database Reconfiguration Status</li> </ul> </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>• SBR Databases</li> <li>• Access Point Names</li> <li>• SBR Database Resizing Plans</li> <li>• SBR Data Migration Plans</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>

Menu Item	Function
IPFE (optional)	Allows the user to configure IP Front End (IPFE) options and IP List TSAs.  This is accessible from the SOAM server only.
MAP-Diameter Interworking	On the SOAM, allows the user to perform configuration tasks, edit options, and view elements for the DM-IWF DSR Application: <ul style="list-style-type: none"> <li>• DM-IWF Options</li> <li>• Diameter Exception</li> </ul> On the NOAMP, allows the user to perform configuration tasks, edit options, and view elements for the MD-IWF SS7 Application: <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>
CPA (Charging Proxy Application) (optional)	Allows the user to perform configuration tasks, edit system options, and view elements for: <ul style="list-style-type: none"> <li>• System Options</li> <li>• Message Copy</li> <li>• Session Binding Repository</li> <li>• SBR Subresource Mapping</li> </ul> This is accessible from the SOAM only.
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 a password upon login. The System Login page also features a current date and time stamp and a customizable login message.

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.

## 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.

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**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 is displayed.

## 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 (-) will collapse 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, you will see a variety of page formats. Tables, forms, tabbed pages, and reports are the most common formats in the user interface.

**Note:** Screenshots 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 hostname specified in the NodeInfo table.

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)

Ok Apply Cancel

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 will 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 **User Interface** splash page appears. You can display a customized welcome message on the **User Interface** splash page. Use this procedure to customize the message.

1. From the **Main Menu**, select **Administration > General Options**.

The **General Options Administration** page appears.

2. Locate **WelcomeMessage** in the **Variable** column.
3. Enter the welcome message text in the **Value** column.
4. Click **Update 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 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	Insert data into a table
Edit	Edit data within a table
Delete	Delete data from table
Change	Change 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.

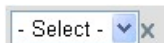
**Table 6: Submit buttons**

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

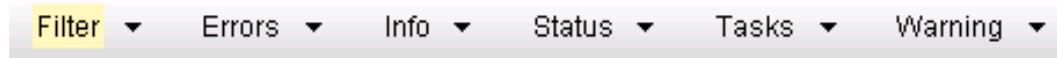
Click the X next to a pulldown list to clear the field.



**Figure 9: Clear Field Control X**

## Optional Layout Element Toolbar

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



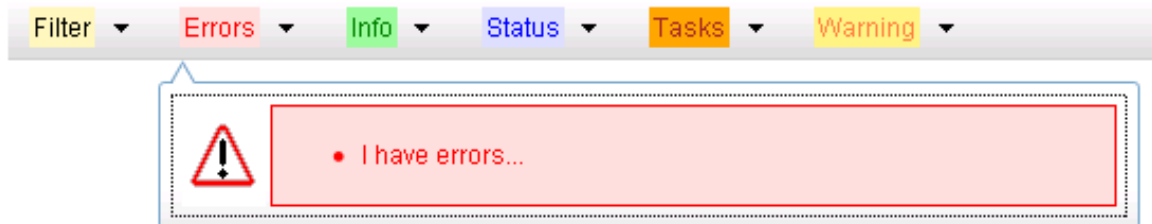
**Figure 10: Optional Layout Element Toolbar**

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.

Operator	Description
<	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 that 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 the **Add** button 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:** **MaxRecordsPerPage** has a range of values from 10 to 100 records. The default value is 20.

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

OK saves the change and returns to the previous page.

Apply saves the change and remains on the same page.

The maximum number of records displayed is changed.

# Chapter 3

## Measurements Overview

---

### Topics:

- [Measurements Warning.....67](#)
- [Displaying the file list.....67](#)
- [Data Export.....67](#)
- [Tasks.....70](#)

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

## Measurements Warning

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

## 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.

## 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.

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

Element	Description	Data Input Notes
Minute	If The Upload Frequency is Hourly, this is the minute of each hour when the transfer is set to begin	Format: Scrolling list Range: 0 to 59 Default: zero
Time of Day	If the Upload Frequency is Daily of Weekly, this is the time of day the export occurs	Format: Time textbox Range: HH:MM AM/PM in 15-minute increments Default: 12:00 AM
Day of Week	If Upload Frequency is Weekly, this is the day of the week when exported data files will be transferred to the export server	Format: Radio button Range: Sunday through Saturday Default: Sunday
SSH Key Exchange	This button launches a dialog box. The dialog requests username and password and initiates SSH key exchange.	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

## 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 specified export server. After the SSH keys are successfully exchanged, continue with the next step.

**14. Click OK or Apply.**

The export server is now configured and available to receive performance and configuration data.

## 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
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.

# Chapter 4

## Measurements

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### Topics:

- *General measurements information.....79*
- *Address Resolution Exception measurements....83*
- *Address Resolution Performance measurements.....93*
- *Application Routing Rules measurements.....100*
- *Association Exception measurements.....103*
- *Association Performance measurements.....113*
- *Association Usage measurements.....115*
- *Charging Proxy Application (CPA) Exception measurements.....117*
- *Charging Proxy Application (CPA) Performance measurements.....123*
- *Charging Proxy Application (CPA) Session DB measurements.....130*
- *Communication Agent (ComAgent) Exception measurements.....136*
- *Communication Agent (ComAgent) Performance measurements.....166*
- *Computer Aided Policy Making (CAPM) measurements.....184*
- *Connection Congestion measurements.....189*
- *Connection Exception measurements.....198*
- *Connection Performance measurements.....205*
- *Diameter Signaling Router (DSR) Application Exception measurements.....216*
- *Diameter Signaling Router (DSR) Application Performance measurements.....224*
- *Diameter Egress Transaction measurements....247*
- *Diameter Exception measurements.....253*
- *Diameter Ingress Transaction Exception measurements.....281*

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

- *Diameter Ingress Transaction Performance measurements.....298*
- *Diameter Performance measurements.....302*
- *Diameter Rerouting measurements.....335*
- *DM-IWF Exception measurements.....339*
- *DM-IWF Performance measurements.....346*
- *Egress Throttle Group Performance measurements.....353*
- *Egress Throttle List Performance measurements.....361*
- *Full Address Based Resolution (FABR) Application Exception measurements.....369*
- *Full Address Based Resolution (FABR) Application Performance measurements.....378*
- *GLA Exception measurements.....387*
- *GLA Performance measurements.....389*
- *IDIH measurements.....392*
- *IP Front End (IPFE) Exception measurements.....395*
- *IP Front End (IPFE) Performance measurements.....398*
- *Link Exception measurements.....405*
- *Link Performance measurements.....408*
- *Link Set Performance measurements.....410*
- *Link Set Usage measurements.....412*
- *Link Usage measurements.....413*
- *MD-IWF Exception Measurements.....416*
- *MD-IWF Performance measurements.....426*
- *MD-IWF SS7 Performance measurements.....442*
- *MD-IWF Diam Performance Measurements...444*
- *Message Copy measurements.....446*
- *Message Priority measurements.....454*
- *Message Processor (MP) Performance measurements.....459*
- *OAM.ALARM measurements.....488*
- *OAM.SYSTEM measurements.....489*
- *OC-DRA Diameter Usage measurements.....490*
- *OC-DRA Diameter Exception measurements..496*
- *OC-DRA Congestion Exception measurements.....514*
- *P-DRA Diameter Usage measurements.....515*
- *P-DRA Diameter Exception measurements.....536*
- *P-DRA Congestion Exception measurements..546*
- *Peer Node Performance measurements.....549*
- *Peer Routing Rules measurements.....551*

- *Route List measurements.....554*
- *Routing Usage measurements.....557*
- *SBR Audit measurements.....559*
- *SBR Binding Performance measurements.....573*
- *SBR Binding Exception measurements.....584*
- *SBR Session Performance measurements.....588*
- *SBR Session Exception measurements.....599*
- *Server Exception measurements.....604*
- *Server M3UA Exception measurements.....605*
- *Server M3UA Performance measurements.....609*
- *Server M3UA Usage measurements.....615*
- *Server MTP3 Exception measurements.....618*
- *Server MTP3 Performance measurements.....623*
- *Server Resource Usage measurements.....627*
- *Server SCCP Exception measurements.....632*
- *Server SCCP Performance measurements.....646*
- *Server TCAP Exception measurements.....657*
- *Server TCAP Performance measurements.....665*
- *Session Binding Repository (SBR) Exception measurements.....669*
- *Session Binding Repository (SBR) Performance measurements.....674*
- *SS7 Exception Measurements.....682*
- *SS7 Performance Measurements.....683*
- *Transport Exception measurements.....684*
- *Transport Usage measurements.....692*
- *Transport Performance measurements.....695*
- *Topology Hiding Performance measurements..702*

## 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.

Table 12: Measurements Elements

Element	Description	Data Input Notes
Scope	<p>Network Elements, Server Groups, Resource Domains, Places and Place Associations for which the measurements report can be run.</p> <p><b>Note:</b> Measurements for SOAM network elements are not available in systems that do not support SOAMs.</p>	<p>Format: Pulldown list</p> <p>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</p> <p><b>Note:</b> If no selection is made, the default scope is Entire Network.</p> <p>Default: Entire Network</p>
Report	A selection of reports	<p>Format: Pulldown list</p> <p>Range: Varies depending on application</p> <p>Default: Group</p>
Column Filter	The characteristics for filtering the column display	<p>Format: Pulldown list</p> <p>Range: Sub-measurement</p> <p>Sub-measurement Ranges:</p> <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> <p>Default: None</p>
Time Range	The interval of time for which the data is being reported, beginning or ending on a specified date.	<p>Format: Pulldown list</p> <p>Range: Days, Hours, Minutes, Seconds</p> <p>Interval Reference Point: Ending, Beginning</p> <p>Default: Days</p>



## 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.

Element	Description	Data Input Notes
Export Frequency	Frequency at which the export occurs	Format: Radio button Range: Fifteen Minutes, Hourly, Once, Weekly, or Daily Default: Once
Minute	If hourly or fifteen minutes is selected for Upload Frequency, this is the minute of each hour when the data will be written to the export directory.	Format: Scrolling list Range: 0 to 59 Default: 0
Time of Day	Time of day the export occurs	Format: Time textbox Range: 15-minute increments Default: 12:00 AM
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

Measurement Tag	Description	Collection Interval
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
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	5 min

Measurement Tag	Description	Collection Interval
	AVP but no valid Routing Entity Addresses were found.	
RxRbarResolFailUnsigned16Match	Number of Request messages received with an UNSIGNED16 value that did not match a provisioned address or address range.	5 min
RxRbarUnkApplId	Number of Request messages rejected due to an unknown Application ID.	5 min
TxRbarAbandonRequest	Number of Request messages that are abandoned	5 min

### RxRbarDecodeFailureResol

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages rejected due to a message decoding error.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and does not decode an AVP which extends beyond the length of the message indicated by the Message Length parameter in the message header.

**Measurement Scope:** Server Group

**Recovery:**

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

### RxRbarInvalidImsiMcc

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of times an AVP instance present in Diameter request message is rejected due to the MCC contained in the decoded IMSI falls within one of the configured Reserved MCC Ranges.

**Collection Interval:** 5 min

**Peg Condition:** Each time Diameter request message is rejected due to the MCC contained in the decoded IMSI falls within one of the configured Reserved MCC Ranges.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailAll

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received which did not resolve to a provisioned address or address range.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

### Recovery:

An individual address or address range associated with the Application ID, Command Code and Routing Entity Type may be missing from the RBAR configuration. Validate which address and address range tables are associated with the Application ID, Command Code and Routing Entity Type.

View the currently provisioned Application IDs, Command Codes, and Routing Entity Types by selecting **RBAR > Configuration > Address Resolutions**.

## RxRbarResolFailCmdcode

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with an unknown Command Code.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and, after attempting to validate the ordered pair (Application ID and Command Code), the Command Code is unknown. RBAR invokes the routing exception handling procedure assigned to this Application ID and Routing Exception Type.

**Measurement Scope:** Server Group

### Recovery:

The order pair (Application ID and Command Code) is not provisioned in the Address Resolutions routing configuration.

View the currently provisioned Application IDs and Command Codes by selecting **RBAR > Configuration > Address Resolutions**.

## RxRbarResolFailDbFail

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of routing attempt failures due to internal database inconsistency failure.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and encounters a run-time database inconsistency.

**Measurement Scope:** Server Group

**Recovery:**

If this problem occurs, contact [My Oracle Support \(MOS\)](#).

## RxRbarResolFailImpiMatch

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with a valid IMPI that did not match a provisioned address or address range.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IMPI and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailImpuMatch

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with a valid IMPU that did not match a provisioned address or address range.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IMPU and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailImsiMatch

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with a valid IMSI that did not match a provisioned address or address range.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IMSI and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailIpv4Match

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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



**Description:** Number of Request messages received with an IPv4 Address that did not match a provisioned address or address range

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IPv4 Address and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailIpv6prefixMatch

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with an IPv6-Prefix Address that did not match a provisioned address or address range

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IPv6-Prefix Address and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailMsisdnMatch

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with a valid MSISDN that did not match a provisioned address or address range

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of MSISDN and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailNoAddrAvps

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received without a Routing Entity Address AVP.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message, with the number of AVPs searched—as defined by measurement RxRbarAvgAddrAvps for the message—as 0 and hence, a valid Routing Entity address cannot be found using any of the Routing Entity Types assigned to the ordered pair (Application ID and Command Code).

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailNoValidAddr

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with at least Routing Entity Address AVP but no valid Routing Entity Addresses were found.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message, with the number of AVPs searched—as defined by measurement RxRbarAvgAddrAvps for the message—as > 0 but, a valid Routing Entity address cannot be found using any of the Routing Entity Types assigned to the ordered pair (Application ID and Command Code).

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarResolFailUnsigned16Match

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with an UNSIGNED16 value that did not match a provisioned address or address range.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of UNSIGNED16 and, using the provisioned individual addresses or address ranges, does not successfully resolve to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxRbarTransactionsRejected

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of transactions rejected by RBAR.

**Collection Interval:** 5 min

**Peg Condition:** Each time the RBAR application sends an answer response with Result-Code/Experimental-Code or abandons an ingress request message.

**Measurement Scope:** Server Group

**Recovery:**

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

**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:**

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.

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

## TxRbarAbandonRequest

**Measurement Group:** Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages that are abandoned

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception "Abandon Request" is invoked

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## Address Resolution Performance measurements

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

**Table 15: Address Resolution Performance Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxRbarAvgMsgSize	Average size of Request message received.	5 min
RxRbarMsgs	Number of Diameter messages received by Range Based Address Resolution application.	5 min
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

Measurement Tag	Description	Collection Interval
RxRbarResolRateAvg	Average Addresses Successfully Resolved per second.	5 min
RxRbarResolRatePeak	Peak Addresses Successfully Resolved per second.	5 min
RxRbarResolSingleAddr	Number of Addresses Successful Resolved with an Individual Address.	5 min
RxRbarResolUnsigned16	Number of Addresses Successful Resolved with Routing Entity type UNSIGNED16.	5 min
TxRbarFwdDefaultDest	Number of Request message forwarding attempts using a Default Destination.	5 min
TxRbarFwdNochange	Number of Request message forwarding attempts without changing the message.	5 min
TxRbarFwdSuccess	Number of Request messages successfully forwarded (all reasons).	5 min
TxRbarMsgAttempt	Number of Request message forwarding attempts (all reasons).	5 min

## RxRbarAvgMsgSize

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Average

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

**Description:** Average size of Request message received.

**Collection Interval:** 5 min

**Peg Condition:** Average calculated for each Request message received as defined by measurement [RxRbarMsgs](#).

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarMsgs

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request messages received by RBAR.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and determines that the Application ID in the message header is defined in the routing configuration and valid.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolAll

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved to a Destination.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolAllMp

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Addresses Successful Resolved to a Destination by the MP.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and successfully resolves its Application ID, Command Code and Routing Entity to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**RxRbarResolImpi**

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IMPI.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IMPI and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**RxRbarResolImpu**

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IMPU.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IMPU and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**RxRbarResolImsi**

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IMSI.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IMSI and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.



**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolIpv4

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IPv4 Address.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IPv4 Address and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolIpv6prefix

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IPv6-Prefix Address.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of IPv6-Prefix Address and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolMsisdn

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type MSISDN.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of MSISDN and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolRateAvg

No action required.

## RxRbarResolRatePeak

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak Addresses Successfully Resolved per second

**Collection Interval:** 5 min

**Peg Condition:** At the end of each sample period associated with average successfully resolved message rate, as defined by measurement [RxRbarResolRateAvg](#), if the value exceeds the current value for this measurement, then the measurement will be updated with the current sample periods value.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolSingleAddr

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with an Individual Address.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message and uses the Address Exceptions to successfully resolve its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRbarResolUnsigned16

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type UNSIGNED16.

**Collection Interval:** 5 min

**Peg Condition:** When RBAR receives a Request message with a Routing Entity type of UNSIGNED16 and successfully resolves its Application ID, Command Code and Routing Entity to a Destination and forwards the message to the DSR Relay Agent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxRbarFwdDefaultDest

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request message forwarding attempts using a Default Destination.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception Forward route the message with a user-configurable Default Destination is invoked.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxRbarFwdNochange

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request message forwarding attempts without changing the message.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception Forward route the message unchanged is invoked.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxRbarFwdSuccess**

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request messages successfully forwarded (all reasons).

**Collection Interval:** 5 min

**Peg Condition:** Each time the application successfully enqueues a Request message on the DSR Relay Agent's Request Message Queue.

**Measurement Scope:** Server Group

**Recovery:**

If this value is less than measurement [TxRbarMsgAttempt](#), then an internal resource error is occurring. Contact [My Oracle Support \(MOS\)](#). if needed.

**TxRbarMsgAttempt**

**Measurement Group:** Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request message forwarding attempts (all reasons).

**Collection Interval:** 5 min

**Peg Condition:** Each time the application attempts to enqueue a Request message on the DSR Relay Agent's Request Message Queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**Application Routing Rules measurements**

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

Table 16: Application Routing Rule Measurements

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

**RxApplRuleSelected****Measurement Group:**Application Routing Rules**Measurement Type:** Simple**Measurement Dimension:** Arrayed (by Application Routing Rule ID)**Description:** Number of times that the application routing rule was selected for routing a Request message.**Collection Interval:** 5 min**Peg Condition:** When DRL selects an application routing rule for routing a message.**Measurement Scope:** Server Group**Recovery:**

No action required.

## RxApplRuleFwdFailAll

**Measurement Group:** Application Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Application Routing Rule ID)

**Description:** Number of times that the application routing rule was selected for routing a Request message and the message was not successfully routed for any reason.

**Collection Interval:** 5 min

**Peg Condition:** When DRL selects an application routing rule to route a Request message and one of the following conditions is met:

- The DSR Application's Operational Status is "Unavailable".
- The DSR Application's Operational Status is not "Unavailable" but the attempt to enqueue the message to the DSR Application failed.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxApplRuleFwdFailUnavail

**Measurement Group:** Application Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Application Routing Rule ID)

**Description:** Number of times that the application routing rule was selected for routing a Request message and the message was not successfully routed because DSR Application's Operational Status was "Unavailable".

**Collection Interval:** 5 min

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

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxApplRuleDuplicatePriority

**Measurement Group:** Peer Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Application Routing Rule ID)

**Description:** Number of times that the application routing rule was selected for routing a message but another application routing rule had the same priority and was ignored.

**Collection Interval:** 5 min

**Peg Condition:** When DRL searches the ART and finds more than one highest priority application routing rule with the same priority that matches the search criteria. The measurement is associated with the application routing rule that is selected for routing.

**Measurement Scope:** Server Group

**Recovery:**

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

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

## RxArtSelected

**Measurement Group:** Application Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of times that an application routing rule from ART-X was selected for routing a Request message

**Collection Interval:** 5 min

**Peg Condition:** When DRL selects an application routing rule from ART-X for routing a message

**Measurement Group:** Server Group

**Recovery:**

No action required.

## Association Exception measurements

**Table 17: Association Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxTrFarEndClose	Number of times the far end closed the SCTP connection.	30 min
EvTrManClose	The number of times the Transport was manually closed. This includes manual changes of the transport administrative state that caused the transport to transition from APP-UP to Disabled.	30 min

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



Measurement Tag	Description	Collection Interval
EvSctpAdjIPToDwn	Number of times configured IP Address of an Adjacent Node goes from Available to Unavailable.	30 min
EvSctpTransRej	Number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.	30 min

## RxTrFarEndClose

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** Number of times the far end closed the SCTP connection

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time the far-end of the association closes the association by sending either SHUTDOWN or ABORT.

**Measurement Scope:** NE, Server

**Recovery:**

1. If the closing of the association was expected, no further action is necessary, the association will be recovered as soon as the far-end is ready to connect again. If the closing of the association was not expected. You can view Association status from the GUI main menu under **SS7/Sigtran>Maintenance>Associations**.
2. Look in the event history from the GUI main menu under **Alarms & Events>View History** for **Event ID 19224** to determine exactly when the far-end closed the association.
3. Look for other events for the association or MP server in the event history.
4. Verify that IP connectivity still exists between the MP server and the SG.
5. Verify whether the far-end of the association is undergoing maintenance.
6. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvTrManClose

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of times the association was manually closed. This includes manual changes of the association administrative state that cause the association to transition from ASP-UP to either ASP-DOWN or **Disabled**.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time a manual change is made to the association administrative state from **Enabled** to **Blocked** or from **Enabled** to **Disabled**, causing the association to transition out of ASP-UP protocol state.

**Measurement Scope:** NE, Server

**Recovery:**

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

## EvTrNoRespClose

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of times the association was closed due to lack of response from the far end. This includes lack of response to any signaling sent on the association or to SCTP heartbeating if enabled.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an established SCTP association is closed by the MP server due to lack of response at the SCTP level from the far-end of the association.

**Measurement Scope:** NE, Server

**Recovery:**

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

## EvTrCnxFail

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of times the SCTP connection attempt failed on the association. This includes only unsuccessful attempts to connect to the signaling gateway . It does not include failure of established connections.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an SCTP connect attempt fails.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement should have a zero value. A non-zero value indicates that the MP server has attempted to connect to the signaling gateway at least once and failed to establish the SCTP connection. You can view Association status from the GUI main menu under **SS7/Sigtran>Maintenance>Associations**.
2. Check the event history log from the GUI main menu under **Alarms & Events>View History**, looking for **Event ID 19222**. **Event ID 19222** provides details about the cause of the failure.
3. Verify that the Adjacent Server that represents the far-end of the association is configured with the correct IP address. You can view the Adjacent Servers from the GUI main menu under **SS7/Sigtran>Configuration>Adjacent Servers**.
4. Verify that the remote port configured for the association correctly identifies the port that the signaling gateway is listening on for SCTP connections. You can view the configured port from the GUI main menu under **SS7/Sigtran>Configuration>Associations>Configure**.
5. Verify the IP network connectivity between the MP server and the signaling gateway.
6. If the signaling gateway must be configured to connect to the MP server's IP address and port, verify that the signaling gateway configuration matches the association configuration. You can view association data from the GUI main menu under **SS7/Sigtran>Configuration>Associations>Configure**.
7. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxTrSendFail

**Measurement Group:** Association Exception

**Measurement Dimension:** Arrayed (per Transport)

**Measurement Type:** Simple

**Description:** The number of times the SCTP Send failed for non-DATA M3UA signaling on the association. The number includes the sending of any non-DATA messages on an established association.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an attempt to send M3UA signaling fails for any reason and the information being sent cannot be mapped to a specific link

**Measurement Scope:** NE, Server

**Recovery:**

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

**RxTrRcvFail**

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of times an SCTP/UDP receive attempt failed on the transport. Failure to receive message via SCTP may result in a message being discarded.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an SCTP receive fails when the far-end attempted to send data, but the data cannot be received due to an invalid message length.

**Measurement Scope:** NE, Server

**Recovery:**

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

**EvTrSockInitFail**

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of times the socket initialization failed. Socket initialization includes configuring the association according to the settings in the GUI under **SS7/Sigtran>Configuration>Associations>Configuration Sets**.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time one or more socket options cannot be set according to the settings in the association's configuration set.

**Measurement Scope:** NE, Server

**Recovery:**

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

## RxAsnM3uaERROR

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of M3UA ERROR messages received on the association. An M3UA ERROR message is sent by the far-end to complain about an invalid M3UA message that it received.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an M3UA ERROR message is received that cannot be mapped to a specific link.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement will have a value of zero. A non-zero value indicates a problem with M3UA signaling sent by the MP server.
2. Look for **Event ID 19235** from the GUI main menu under **Alarms & Events>View History**. **Event ID 19235** 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

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of times the association timed out waiting for ASP-UP-ACK. ASP-UP-ACK is sent by the far-end in response to an ASP-UP message during the association start-up (when the association is in the **Enabled** administrative state).

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an ASP-UP has been sent and the M3UA State Management ACK Timer expires, but no ASP-UP-ACK has been received for the association.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement should have a zero value. If the value is not zero, the association cannot be brought into the state necessary for M3UA ASPTM traffic because the far-end of the association is not responding by sending an ASP-UP-ACK prior to the timeout defined in the GUI under **SS7/Sigtran>Configuration>Options>M3UA**. The field that defines the timeout is the **State Management ACK Timer**.
2. You can view Association status from the GUI main menu under **SS7/Sigtran>Maintenance>Associations**.
3. Check the event history from the GUI main menu under **Alarms & Events>View History**, looking for **Event ID 19226**. **Event ID 19226** will show when the timeout occurred.
4. Verify that the far-end of the association on the SG is not undergoing maintenance.
5. Verify that the **State Management ACK Timer** value is not set too short. This should not occur if the IP network is functioning correctly.
6. Verify that the IP network between the MP server and the SG is performing up to expectations.
7. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxAsnUnsolDownAck

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number of unsolicited M3UA ASP-DOWN-ACK messages received on the association. Unsolicited ASP-DOWN-ACK messages can be sent by the SG to indicate that the SG cannot process traffic on the association.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an unsolicited ASP-DOWN-ACK is received on the association.

**Measurement Scope:** NE, Server

**Recovery:**

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

## RxAsnInvalidM3ua

**Measurement Group:** Association Exception

**Measurement Type:** Simple

**Description:** The number invalid M3UA messages received on this association. An invalid M3UA message is a message that violates the M3UA protocol.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an M3UA message is received on the association that is invalid due to any syntactic or semantic reason.

**Measurement Scope:** NE, Server

**Recovery:**

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

## TmSingleTransQueueFull

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Description:** The number of egress messages that were discarded because the single Transport Writer Queue was full.

**Collection Interval:** 30 min

**Peg Condition:** Check whether the single peers transmit data queue limit has reached its max limit (1000). If maximum limit is reached or exceeded, then peg the measurement and discard the low priority events.

**Measurement Scope:** NE, Server

**Recovery:**

This measurement indicates that the Transport is backed up and messages might be discarded. If the value is above the defined critical threshold, an alarm (19408) is generated.

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

## EvSctpAdjPToDwn

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Description:** Number of times configured IP Address of an Adjacent Node goes from Available to Unavailable.

**Collection Interval:** 30 min

**Peg Condition:** This measurement shall be incremented by one each time:

- Reachability to a configured IP address of an Adjacent Node is lost, indicating a fault in the path to that address was detected.

**Measurement Scope:** NE, Server

**Recovery:**

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.

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**

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Description:** Number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.

**Collection Interval:** 30 min

**Peg Condition:** This measurement shall be incremented by one each time:

- The association has been rejected due to IP address validation in the SCTP INITs/INIT-ACKs transmitted by the Adjacent Node.

**Measurement Scope:** NE, Server

**Recovery:**

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.

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

**Measurement Group:** Association Performance

**Measurement Dimension:** Arrayed (per Transport)

**Measurement Type:** Simple

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

**Collection Interval:** 30 min

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

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

### RxTrOctets

**Measurement Group:** Association Performance

**Measurement Type:** Simple

**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

**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. Thee 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

**Measurement Group:** Association Performance

**Measurement Type:** Average

**Description:** The average SCTP Single Association Writer Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 30 min

**Peg Condition:** The average of all SCTP Single Association Writer Queue utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement is a measure of how fast the Transport queue is processed and indicates the Average depth of queue over the monitored interval.
2. It is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
3. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum capacity of an MP over several collection intervals, then the number of MPs in the Network Element might need to be increased.
4. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then a MP-specific hardware, software, or configuration problem might exist.
5. If the problem persists, 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
RxTrOctets	The number of octets received on the SCTP/UDP Transport. It does not include SCTP, IP, or Ethernet headers.	30 min

## EvTrCnxSuccess

**Measurement Group:** Transport Usage

**Measurement Type:** Simple

**Description:** The number of times the SCTP connection was successfully established on the transport. The number of times the UDP socket in Listen Mode was opened successfully on the Transport.

**Collection Interval:** 30 min

**Peg Condition:** This measurement shall be incremented by one each time:

- The SCTP association reaches the APP-UP protocol state (for example, the connection is successfully established).
- The UDP socket in Listen Mode was opened successfully.

**Measurement Scope:** NE, Server

**Recovery:**

If the association is expected to have connected during the measurement reporting interval, no action is necessary. Otherwise, perform the following steps:

1. You can view the transport status can be viewed from the GUI main menu under **Transport Manager>Maintenance>Transport**.
2. 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.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmAsnBlkNotDown

**Measurement Group:** Association Usage

**Measurement Dimension:** Arrayed (per association)

**Measurement Type:** Duration

**Description:** The number of seconds during the reporting interval during which the association was in the **Blocked** administrative state but was not in ASP-DOWN state. When the association is **Blocked**, the desired protocol state is ASP-DOWN. This measurement indicates the amount of time during the reporting interval for which the association was not in the desired protocol state.

**Collection Interval:** 30 min

**Peg Condition:** Time is accumulated for this measurement during the collection interval when all of the following are true:

- The association is in the **Blocked** administrative state.
- The association is not in the ASP-DOWN protocol state.

**Measurement Scope:** NE, Server

**Recovery:**

1. The value of this measurement should be zero. A non-zero value indicates that the association was set to the **Blocked** administrative state, but was not able to reach the desired protocol state due to some problem. You can view the Association status from the GUI main menu under **SS7/Sigtran>Maintenance>Associations**.
2. Verify that 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 that 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 Dimension:** Arrayed (per association)

**Measurement Type:** Duration

**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.

## Charging Proxy Application (CPA) Exception measurements

The CPA Exception measurement group contains measurements that provide information about exceptions and unexpected messages and events that are specific to the CPA application. Measurements in this group include:

- Totals for unexpected/errors associated with message content
- Totals for unexpected/errors associated with message routing

Table 20: CPA Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvCpaMessageDecodeFail	The total number of diameter message decode failures.	5 min
EvCpaMissingAvp	The total number of diameter messages received without an AVP required for this application.	5 min
EvCpaOOS	The number of times the CPA was taken Out Of Service.	5 min
EvCpaSubResourceCongested	The total number of Sub-Resources that are determined to be in congestion.	5 min
EvCpaUnexpectedSess	The CPA has received an ACA-Start that already has a Session Binding Record.	5 min
EvCpaUnkDiameterAppId	The total number of diameter messages received with an unknown application ID.	5 min
RxCpaHaSubResourceUnavail	The number of times a Diameter message is received whose Session-Id hashes to a database partition that is unavailable.	5 min
RxCpaNon2xxAnswer	The number of Diameter Answer messages received with a non-2xx response code.	5 min
RxCpaOpStatusUnavail	The number of times a message is received and the CPA has an operational status of unavailable.	5 min
RxCpaUnexpected	The number of Unexpected Diameter message types received during the reporting interval.	5 min
TxCpaAnswerByCpa	The number of times an Answer is generated (not relayed) by the CPA.	5 min
TxCpaRteFailure	The number of messages sent by the CPA to the routing layer which failed to route successfully.	5 min

## EvCpaMessageDecodeFail

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of diameter message decode failures.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever a Diameter message decode failure is detected.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## EvCpaMissingAvp

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of diameter messages received without an AVP required for this application.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever a Diameter message is received without an AVP required for this application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## EvCpaOOS

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times the CPA was taken Out Of Service.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA is taken Out Of Service either manually or automatically.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

1. This measurement indicates problems with the CPA. Logs and Alarms should be checked to determine the cause of the problem.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## EvCpaSubResourceCongested

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Congestion Level)

**Description:** The total number of Sub-Resources that are determined to be in congestion.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever SBR reports a congestion level either through a response or a polled query.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## EvCpaUnexpectedSess

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The CPA has received an ACA-Start that already has a Session Binding Record.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an ACA-Start is received and a Session Binding Record already exists.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## EvCpaUnkDiameterAppId

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of diameter messages received with an unknown application ID.

**Collection Interval:** 5 min



**Peg Condition:** This measurement will be pegged whenever a Diameter message is received with an unknown application ID.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### RxCpaHaSubResourceUnavail

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Sub-Resource ID)

**Description:** The number of times a Diameter message is received whose Session-Id hashes to a database partition that is unavailable.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when a Diameter request hashes to a database partition that is unavailable.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### RxCpaNon2xxxAnswer

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Diameter Answer messages received with a non-2xxx response code.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an unexpected Diameter answer with a non-2xxx response code is received.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

1. If this count is non-zero it could indicate a mis-configuration of Application Routing.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

### RxCpaOpStatusUnavail

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times a message is received and the CPA has an operational status of unavailable.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when a Diameter Request is received when the operational status of the CPA is Unavailable.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaTransactionsRejected

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of transactions rejected by CPA.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented whenever CPA sends an answer with some error code or discards an ingress request message.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaUnexpected

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Unexpected Diameter message types received during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an unexpected Diameter (ie; not an Accounting) message is received.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

1. If this count is non-zero it could indicate a mis-configuration of Application Routing.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## TxCpaAnswerByCpa

**Measurement Group:** CPA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times an Answer is generated (not relayed) by the CPA.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an error condition occurs that causes the CPA to generate an Answer and not relay one.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## TxCpaRteFailure

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages sent by the CPA to the routing layer which failed to route successfully.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA sends a message to the routing layer which fails to route successfully.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## Charging Proxy Application (CPA) Performance measurements

The CPA Performance measurement group contains measurements that provide performance information that is specific to the CPA application. Measurements in this group include:

- Totals for various expected/normal messages and events
- Totals for various expected/normal routing procedures invoked

Table 21: CPA Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxCpaAcaEvent	The number of Accounting Answer-Event messages received during the collection interval.	5 min
RxCpaAcaInterim	The number of Accounting Answer-Interim messages received during the collection interval.	5 min
RxCpaAcaStart	The number of Accounting Answer-Start messages received during the collection interval.	5 min
RxCpaAcaStop	The number of Accounting Answer-Stop messages received during the collection interval.	5 min
RxCpaAccounting	The number of Diameter Accounting messages received during the reporting interval.	5 min
RxCpaAcrEvent	The number of Accounting Request-Event messages received during the collection interval.	5 min
RxCpaAcrInterim	The number of Accounting Request-Interim messages received during the collection interval.	5 min
RxCpaAcrStart	The number of Accounting Request-Start messages received during the collection interval.	5 min
RxCpaAcrStop	The number of Accounting Request-Stop messages received during the collection interval.	5 min
RxCpaMsgProcessed	The total number of Diameter messages (Request or Answer) received during the reporting interval.	5 min
TxCpaAnswerMsgToDrl	The number of Answers sent to DRL layer by CPA during the collection interval.	5 min
TxCpaMsgCopyInd	The number of messages sent by the CPA to the routing layer	5 min

Measurement Tag	Description	Collection Interval
	with message copy indication set.	
TxCpaRequestMsgToDrl	The number of Requests sent to DRL layer by CPA during the collection interval.	5 min
TxCpaTraceInd	The number of messages sent by the CPA to the routing layer with trace indication set.	5 min

## RxCpaAcaEvent

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Answer-Event messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Answer-Event message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaAcaInterim

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Answer-Interim messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Answer-Interim message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaAcaStart

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Answer-Start messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Answer-Start message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaAcaStop

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Answer-Stop messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Answer-Stop message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaAccounting

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Diameter Accounting messages received during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when a Diameter Accounting message is received.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaAcrEvent

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Request-Event messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Request-Event message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaAcrInterim

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Request-Interim messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Request-Interim message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaAcrStart

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Request-Start messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Request-Start message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### RxCpaAcrStop

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Accounting Request-Stop messages received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when an Accounting Request-Stop message is received by the CPA application.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### RxCpaMsgProcessed

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of Diameter messages (Request or Answer) received during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever a Diameter message (Request or Answer) is received.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### TxCpaAnswerMsgToDrl

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single



**Description:** The number of Answers sent to DRL layer by CPA during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever CPA sends an Answer to DRL during the collection interval.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### TxCpaMsgCopyInd

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages sent by the CPA to the routing layer with message copy indication set.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA sends a message to the routing layer with the message copy indication set.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### TxCpaRequestMsgToDrl

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Requests sent to DRL layer by CPA during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever CPA sends a Request to DRL during the collection interval.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### TxCpaTraceInd

**Measurement Group:** CPA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages sent by the CPA to the routing layer with trace indication set.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA sends a message to the routing layer with the trace indication set.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## Charging Proxy Application (CPA) Session DB measurements

The CPA Session DB measurement group contains measurements that provide information about events that occur when the CPA queries the Session Binding Repository:

- Performance related measurements for SBR queries
- Exceptions and unexpected events related to SBR query processing

**Table 22: CPA Session DB Measurement Report Fields**

Measurement Tag	Description	Collection Interval
EvCpaNoSbrAccess	The number of queries by the CPA to the SBR where the SBR is inaccessible.	5 min
EvCpaSbrAvgRespTime	The average response time for a stateful SBR transaction.	5 min
EvCpaSbrCreateSess	The number of sessions created by the CPA on the SBR during the collection interval.	5 min
EvCpaSbrDeleteSess	The number of sessions deleted by the CPA on the SBR during the collection interval.	5 min
EvCpaSbrPeakRespTime	The peak response time for SBR queries during the reporting interval.	5 min
EvCpaSbrQryError	The number of queries initiated by the CPA to the SBR that resulted in an error condition during the collection interval.	5 min
EvCpaSbrQryMatch	The number of queries initiated by the CPA to the SBR that	5 min

Measurement Tag	Description	Collection Interval
	resulted in a matching condition during the collection interval.	
EvCpaSbrQryNoMatch	The number of queries initiated by the CPA to the SBR that resulted in a no match condition during the collection interval.	5 min
EvCpaSbrRespTime	This measurement groups responses to SBR queries by the amount of round trip time they took to process. Each bucket will represent the number of responses processed within that time interval.	5 min
EvCpaSbrUpdateSess	The number of update session requests sent by the CPA to the SBR during the collection interval. The value does not include created sessions.	5 min
RxCpaUndeliveredMsg	The total number of messages that ComAgent could not send or for which it did not receive a response.	5 min
TxCpaSbrQueryTot	The total number of queries (reads / creates / updates / deletes) sent from the CPA to the SBR during the reporting interval.	5 min

## EvCpaNoSbrAccess

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of queries by the CPA to the SBR where the SBR is inaccessible.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA attempts a query when the SBR is inaccessible.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

1. The SBR could be Out Of Service or temporarily down.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

### EvCpaSbrAvgRespTime

**Measurement Group:** CPA Session DB

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average response time for a stateful SBR transaction.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the average response time for SBR transactions.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrCreateSess

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of sessions created by the CPA on the SBR during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA creates a new session based on the session identifier.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrDeleteSess

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of sessions deleted by the CPA on the SBR during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever CPA deletes a session on the SBR during the collection interval.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrPeakRespTime

**Measurement Group:** CPA Session DB

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak response time for SBR queries during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement tracks the maximum response time for an SBR query in milliseconds for the reporting interval.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrQryErr

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of queries initiated by the CPA to the SBR that resulted in an error condition during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA initiates a query to the SBR and receives an error response.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrQryMatch

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of queries initiated by the CPA to the SBR that resulted in a matching condition during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA initiates a query to the SBR and finds a match based on the session identifier.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrQryNoMatch

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of queries initiated by the CPA to the SBR that resulted in a no match condition during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the initiates a query (read, create, update, delete) to the and finds no match based on the session identifier.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrResponseTime

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Response Time Interval)

**Description:** This measurement groups responses to SBR queries by the amount of round trip time they took to process. Each bucket will represent the number of responses processed within that time interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged for every SBR response received.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### EvCpaSbrUpdateSess

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of update session requests sent by the CPA to the SBR during the collection interval. The value does not include created sessions.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when the CPA sends an update request to the SBR.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### RxCpaUndeliveredMsg

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of messages that ComAgent could not send or for which it did not receive a response.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be pegged whenever a ComAgent invokes the Undelivered Message callback.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### TxCpaSbrQueryTot

**Measurement Group:** CPA Session DB

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of queries (reads / creates / updates / deletes) sent from the CPA to the SBR during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the total number of queries sent by the CPA to the SBR.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action 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 23: 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



Measurement Tag	Description	Collection Interval
CAMxFIFOQueueFul	StackEvents discarded due to ComAgent MxFIFO queue full condition.	30 min
CAPSTxDscrdCongPeer	Number of egress events discarded because Peer congestion.	30 min
CAPSTxDscrdUnavailGrp	Number of egress stack events discarded because they referred to a Peer Group which was unavailable.	30 min
CAPSTxDscrdUnkwnGrp	Number of egress stack events discarded because they referred to a Peer Group which was unknown.	30 min
CARsrcPoolFul	ComAgent internal resource pool exhaustion condition	30 min
CARSTxDscrdCong	Number of stack events discarded due to Routed Service congestion.	30 min
CARSTxDscrdSvcUnavail	Number of stack events discarded because they were submitted to an Unavailable Routed Service.	30 min
CARxDiscUnexpEvent	Number of ingress events discarded because it was unexpected in the connection operational state.	30 min
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

Measurement Tag	Description	Collection Interval
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).	
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
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	30 min

Measurement Tag	Description	Collection Interval
	abnormally during the collection interval.	
CATransEndAnsErr	Number of reliable transactions initiated by local User Layers that ended with an error response from a destination server.	30 min
CATransEndErr	Number of reliable transactions initiated by local User Layers that ended abnormally with an error response from a destination server.	30 min
CATransEndNoResources	Number of reliable transactions initiated by local User Layers that ended abnormally due to lack of resources.	30 min
CATransEndNoResponse	Number of reliable transactions initiated by local User Layers that ended abnormally due to a timeout waiting for a response.	30 min
CATransEndUnkwnSvc	Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to an unknown service.	30 min
CATransEndUnregSvc	Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to a known service that lacked a registered User Layer.	30 min
CATransNoReTxMaxTTL	Number of reliable transactions abnormally ended because of Max Time to live exceeded without any retransmits.	30 min
CATransRetx	Number of times stack events were retransmitted.	30 min
CATransReTxExceeded	Number of reliable transactions abnormally ended because of Max number of Retries exceeded.	30 min
CATransStaleSuccessRsp	Number of times that a success response was received from an unexpected server and was accepted to end a transaction.	30 min

Measurement Tag	Description	Collection Interval
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

## CADDataFIFOQueueFul

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** StackEvents discarded due to ComAgent DataFIFO queue full condition. This value provides a measure of how many messages are discarded by ComAgent due to ComAgent User Data FIFO Queue full condition.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data StackEvent that is discarded by ComAgent Stack, due to failure in attempting to put the messages in ComAgent User Data FIFO queue.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

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

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

## CADSTxDscrdCong

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of egress stack events discarded because the congestion level of the connection exceeded the stack events' priority level.

**Collection Interval:** 30 min

**Peg Condition:** When ComAgent receives a stack event from a local User Layer to be transferred via the direct service and the selected connection has a congestion level greater than the priority level of the stack event.

**Measurement Scope:** Server

**Recovery:**

When this measurement is increasing, it is an indication that the product is experiencing overload.

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.

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

**CAHSRsrcErr**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of times that ComAgent receives in a heartbeat stack event status concerning a known Resource but an unknown Sub-Resource.

**Collection Interval:** 30 min

**Peg Condition:** When ComAgent stores an unexpected Sub-Resource entry in the local Resource Provider Table. An unexpected Sub-Resource involves a known Resource but an unknown Sub-Resource ID (SRID). This condition is associated with Alarm-ID 19848, and only the first instance of an unexpected Sub-Resource is counted, not the repeats caused by multiple unknown Sub-Resources and the periodic heartbeats containing the same information.

**Measurement Scope:** Server

**Recovery:**

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

**CAHSTxDscrdIntErrSR**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of egress stack events destined to a known Sub-Resource that were discarded due to a ComAgent internal error.

**Collection Interval:** 30 min

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

**Measurement Scope:** Server

**Recovery:**

1. Check other ComAgent measurements, alarms, and events to determine the source of the abnormality causing this measurement to arise.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

**CAHSTxDscrdCongSR**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of stack events discarded due to HA Service Sub-Resource congestion. During normal operation, this measurement should not be increasing. When this measurement is increasing, it is an indication that the product is experiencing overload.

**Collection Interval:** 30 min

**Peg Condition:** Stack event submitted to ComAgent by a local User Layer, and the stack event references an HA Service Sub-Resource that has a congestion level greater than the priority level of the stack event.

**Measurement Scope:** Server

**Recovery:**

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

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

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of egress stack events destined to a known Sub-Resource that were discarded due to a ComAgent internal error.

**Collection Interval:** 30 min

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

**Measurement Scope:** Server

**Recovery:**

1. Check other ComAgent measurements, alarms, and events to determine the source of the abnormality causing this measurement to arise.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## CAHSTxDscrdUnavailSR

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of stack events discarded because they were submitted to an Unavailable Sub-Resource of a given Resource. During normal operation, this measurement should not be increasing. Each count of this measurement indicates that a local application attempted to send a stack event to another server using an HA Service Sub-Resource, but the event was discarded due to the Sub-Resource being unavailable.

**Collection Interval:** 30 min

**Peg Condition:** Stack event submitted to ComAgent by a local User Layer, and the stack event references an Unavailable Sub-Resource.

**Measurement Scope:** Server

**Recovery:**

1. Use **Main Menu > Comamunication 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

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of egress stack events discarded because they referred to a known Resource and an unknown Sub-Resource. During normal operation this measurement should be 0. A non-zero value for this measurement indicates that ComAgent is improperly configured to support a local application.

**Collection Interval:** 30 min

**Peg Condition:** User Layer submits to ComAgent an egress stack event that refers to an unknown Sub-Resource.

**Measurement Scope:** Server

**Recovery:**

1. Use **Main Menu > Comamunication 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**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of egress stack events discarded because they referred to an unknown Resource.

**Collection Interval:** 30 min

**Peg Condition:** User Layer submits to ComAgent an egress stack event that refers to an unknown Resource.

**Measurement Scope:** Server

**Recovery:**

1. Use **Main Menu > Comamunication 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.

**CAHSTxRsrc**

**Measurement Group:** ComAgent Performance, ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of egress stack events that were routed to a known Resource.

**Collection Interval:** 30 min

**Peg Condition:** User Layer submits to ComAgent an egress stack event destined to a known Resource.

**Measurement Scope:** Server

**Recovery:**

No action required.

**CAMxFIFOQueueFul**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** StackEvents discarded due to ComAgent MxFIFO queue full condition. This value provides a measure of how many messages are discarded by ComAgent due to ComAgent internal connection MxFIFO Queue full condition.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data StackEvent that is discarded by ComAgent Stack, due to failure in attempting to put the messages in ComAgent internal connection MxFIFO queue.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

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

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

## CAPSTxDscrdUnkwnGrp

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of egress stack events discarded because they referred to a Peer Group which was unknown

**Collection Interval:** 30 min

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

**Measurement Scope:** Server

**Recovery:**

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

## CAPSTxDscrdUnavailGrp

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Group ID)

**Description:** The number of egress stack events discarded because they referred to a Peer Group which was unavailable

**Collection Interval:** 30 min

**Peg Condition:** For each stack event submitted to ComAgent by a local User Layer and the stack event reference an Unavailable Peer Group

**Measurement Scope:** Server

**Recovery:**

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.

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

## CAPSTxDscrdCongPeer

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Group ID)

**Description:** The number of egress stack events discarded because of Peer congestion

**Collection Interval:** 30 min

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

**Measurement Scope:** Server

**Recovery:**

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

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

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

## CARsrcPoolFul

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** ComAgent internal resource pool exhaustion condition.

**Collection Interval:** 30 min

**Peg Condition:** This is to track the measure of the internal resource (Ex: CommMessage Resource pool) exhaustion condition for a given interval.

For each resource allocation/access attempt that result in resource pool manager returning an indication that the maximum resources reserved are allocated and are in-use. When this condition occurs ComAgent tries to allocate a new resource from heap and relists it after its life cycle (Ex: CommMessage objects required for user data traffic for MxEndpoint interface).

**Measurement Scope:** NE, Server

**Recovery:**

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

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

**CARSTxDscrdCong**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of stack events discarded due to Routed Service congestion.

**Collection Interval:** 30 min

**Peg Condition:** Stack event submitted to ComAgent by a local User Layer, and the stack event references a Routed Service that has a congestion level greater than the priority level of the stack event.

**Measurement Scope:** Server

**Recovery:**

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

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

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

**CARSTxDscrdInternalErr**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of egress events discarded because of another Routed Service internal error

**Collection Interval:** 30 min

**Peg Condition:** Each time an egress event is discarded because of another Router Service internal error

**Measurement Scope:** Server

**Recovery:**

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

## CARSTxDscrdSvcUnavail

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of stack events discarded because they were submitted to an Unavailable Routed Service.

**Collection Interval:** 30 min

**Peg Condition:** Stack event submitted to ComAgent by a local User Layer, and the stack event references an Unavailable Routed Service.

**Measurement Scope:** Server

### Recovery:

Each count of this measurement indicates that a local application attempted to send a stack event to another server using a Routed Service, but the event was discarded due to the Routed Service being unavailable. Routing failures can occur due to:

- Maintenance actions are performed that result in a loss of communication between servers.
- Network problems result in a loss of communication between servers.
- Server overload can result in routes becoming unavailable for some stack events.

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

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ingress events discarded because it was unexpected in the connection operational state.

**Collection Interval:** 30 min

**Peg Condition:** For each ingress StackEvent that is discarded by ComAgent Stack, due to StackEvent received in unexpected connection state.

**Measurement Scope:** NE, Server

### Recovery:

No action required.

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

### CARxDscrdBundle

**Measurement Group:** ComAgent Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of ingress bundled event discarded during routing.

**Peg Condition:** Each time an ingress bundled event is discarded during routing

**Collection Interval:** 30 min

**Measurement Scope:** Site

**Recovery:**

No action required

### CARxDscrdConnUnavail

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Description:** Number of User Data ingress events discarded because connection was not in-service.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data ingress StackEvent received from configured service peer server with connection status not “in-service”.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxDscrdDecodeFailed

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ingress events discarded because failed to deserialize (event not part of stack service language).

**Collection Interval:** 30 min

**Peg Condition:** For each StackEvent received from a configured peer server that resulted in any decode failures within ComAgent Stack.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxDscrdIncompat

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ingress events discarded because an Incompatible header version is received.

**Collection Interval:** 30 min

**Peg Condition:** For each ingress StackEvent that is discarded by ComAgent Stack, due to unsupported base header version, as indicated in StackEvent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxDscrdInternalErr

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ingress events discarded because of other unexpected internal processing error.

**Collection Interval:** 30 min

**Peg Condition:** For each ingress StackEvent that is discarded by ComAgent Stack, due to internal processing errors for conditions not covered by other meas-pegs.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxDscrdLayerSendFail

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data ingress events discarded because layer's sendTo failed.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data StackEvent received from a configured service peer server and resulted in send failure to the destination stack layer.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxDscrdMsgLenErr

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ingress events discarded as it doesn't contain enough bytes (less than event header bytes).

**Collection Interval:** 30 min

**Peg Condition:** For each StackEvent received from configured peer with message size less than the minimum required Header.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxDscrdUnkServer

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple



**Measurement Dimension:** Single

**Description:** Number of ingress events discarded because the origination server was unknown/not configured.

**Collection Interval:** 30 min

**Peg Condition:** For each ingress StackEvent that is discarded by ComAgent Stack, due to unknown origination ip address contents in StackEvent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxDscrdUnkStkLyr

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data ingress events discarded because stack layer is not known.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data ingress StackEvent received by Communication Agent Stack, for an unknown destination stack.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CARxMsgUnknown

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ingress events discarded because stack event was unknown.

**Collection Interval:** 30 min

**Peg Condition:** For each undefined StackEvent received from one of the configured peer server.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

## CASStackQueueFul

**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

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of received stack events that were received and discarded because they did not correlate with a pending transaction.

**Collection Interval:** 30 min

**Peg Condition:** ComAgent receives a response stack event that contains a correlation ID that does not match a pending transaction record.

**Measurement Scope:** Server

**Recovery:**

This measurement indicates that one or more destination servers are either responding to requests after a transaction has ended or are sending invalid responses. Contact [My Oracle Support \(MOS\)](#) for assistance.

## CATransDscrdStaleErrRsp

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of times that an error response was discarded because it contained a valid correlation ID value but its originating server was not the last server to which the request was sent.

**Collection Interval:** 30 min

**Peg Condition:** ComAgent receives an error response stack event that has a correlation ID for an existing pending transaction record but that is originated from a different server than to which the request was last sent.

**Measurement Scope:** Server

### Recovery:

This measurement indicates that one or more servers are responding with errors to requests after the local ComAgent has retransmitted the requests to other destination servers. This could occur due to:

- Network problems result in intermittent loss of communication between servers.
  - Server overload results in delayed responses
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

**Measurement Group:** ComAgent Exception, ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions that terminated abnormally.

**Collection Interval:** 30 min

### Peg Condition:

- Transaction times-out waiting for a response, and the maximum number of transmits has been reached.
- Transaction time-to-live limit is exceeded.
- Transaction terminated due to lack of resources.

**Note:** This measurement is NOT pegged for these conditions:

- Transaction involves an unknown service.
- Transaction involves an unregistered Routed Service.

**Measurement Scope:** Server

### Recovery:

1. Check the ComAgent Exception report to further diagnose the reasons why transactions are failing.
2. 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.

**Measurement Scope:** Server

**Recovery:**

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.

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.

**Measurement Scope:** Server

**Recovery:**

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.

No action necessary.

**CATransEndAnsErr**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions initiated by local User Layers that ended with an error response from a destination server.

**Collection Interval:** 30 min

**Peg Condition:** When a reliable response stack event (G=1, A=1, E=1) is received from a server to which a request was sent, and the response corresponds to a pending transaction record.

**Measurement Scope:** Server

**Recovery:**

No action necessary.

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

**CATransEndErr**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions initiated by local User Layers that ended abnormally with an error response from a destination server.

**Collection Interval:** 30 min

**Peg Condition:** When a valid reliable response stack event (G=1, A=0, E=1) is received from a server to which a request was sent, and the response corresponds to a pending transaction record.

**Measurement Scope:** Server

**Recovery:**

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.

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**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions initiated by local User Layers that ended abnormally due to lack of resources.

**Collection Interval:** 30 min

**Peg Condition:** ComAgent receives a reliable request (G=1, R=1) from a local User Layer and ComAgent is unable to allocate resources to process the transaction.

**Measurement Scope:** Server

**Recovery:**

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.

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

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions initiated by local User Layers that ended abnormally due to a timeout waiting for a response.

**Collection Interval:** 30 min

**Peg Condition:** Limit on the number of retransmits is reached with no response and limit on the transaction time-to-live is exceeded.

**Measurement Scope:** Server

**Recovery:**

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.

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**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to an unknown service.

**Collection Interval:** 30 min

**Peg Condition:** ComAgent receives a reliable request (G=1, R=1) from a local User Layer that refers to an unknown service.

**Measurement Scope:** Server

**Recovery:**

This measurement indicates improper configuration of ComAgent and/or a User Layer application.

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**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of reliable transactions initiated by local User Layers that ended abnormally because they referred to a known service that lacked a registered User Layer.

**Collection Interval:** 30 min

**Peg Condition:** ComAgent receives a reliable request (G=1, R=1) from a local User Layer that refers to a known service that has no registered User Layer.

**Measurement Scope:** Server

**Recovery:**

A non-zero value in this measurement indicates a software malfunction.

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

**CATransNoReTxMaxTTL**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions abnormally ended because of Max Time to live exceeded without any retransmits.

**Collection Interval:** 30 min

**Peg Condition:** Maximum Time To Live period exceeded with no retransmission attempts and no response received for the transaction.

**Measurement Scope:** Server

### Recovery:

This measurement provides a measure of abnormal transactions due to maximum time to live period exceeded condition (Without any retransmits) and no response is received from remote. Such abnormal transactions can be due to:

- Server overload that can result in delayed responses.
  - Unexpected conditions in software.
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

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of times stack events were retransmitted.

**Collection Interval:** 30 min

**Peg Condition:** ComAgent reliable transaction retransmit timer expires and the limit on the number of retransmits has not been reached.

**Measurement Scope:** Server

### Recovery:

When this measurement is increasing, it indicates that communication between servers is experiencing unexpectedly high latency and/or packet loss. Retransmissions can occur due to:

- Maintenance actions are performed that result in a loss of communication between servers.
  - Network problems result in a loss of communication between servers.
  - Server overload can result in delayed responses.
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

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions abnormally ended because of Max number of Retries exceeded.

**Collection Interval:** 30 min

**Peg Condition:** Number of retransmits limit is reached with no response received for the transaction.

**Measurement Scope:** Server

### Recovery:

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.
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.

**Measurement Scope:** Server

### Recovery:

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.

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

**Peg Condition:** Maximum Time To Live period exceeded with at least one retransmission attempted and no response received for the transaction.

**Measurement Scope:** Server

### Recovery:

This measurement provides a measure of abnormal transactions due to maximum time to live period exceeded condition (Where at least one retransmission was also attempted) and no response is received from remote. Such abnormal transactions can be due to:

- Maintenance actions performed that result in a loss of communication between servers.
  - Server overload that can result in delayed responses.
  - Unexpected conditions in software.
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

**Measurement Group:** ComAgent Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of egress bundled event discarded during routing.

**Peg Condition:** Each time an egress bundled event is discarded during routing

**Collection Interval:** 30 min

**Measurement Scope:** Site

### Recovery:

No action required

## CATxDscrdConnUnAvail

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data egress events discarded because connection was not in-service(down/blocked/not aligned).

**Collection Interval:** 30 min

**Peg Condition:** For each User Data egress StackEvent that is discarded by ComAgent Stack, due to connection status not being in-service.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

## CATxDscrdDestUserIncmpat

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data egress events discarded because the remote doesn't support requested capabilities (either it doesn't support stack or event library or event library version is incompatible).

**Collection Interval:** 30 min

**Peg Condition:** For each User Data egress StackEvent that is discarded by Communication Agent Stack, due to incompatibility in requested library id/version and the one known by Communication Agent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

## CATxDscrdEncodeFail

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data egress events discarded because of serialization failures.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data egress StackEvent that is discarded by Communication Agent Stack, due to any local encode failures.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CATxDscrdInternalErr

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of egress events discarded because of other unexpected internal processing error.

**Collection Interval:** 30 min

**Peg Condition:** For each egress StackEvent that is discarded by ComAgent Stack, due to internal processing errors for conditions not covered by other meas-pegs.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CATxDscrdMxSendFail

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data egress events discarded because of failure reported by MxEndpoint.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data egress StackEvent that is discarded by Communication Agent Stack, due to send failure as indicated by underlying transport.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

**CATxDscrdUnknownSvc**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of non-reliable and non-request (G=0 or R=0) egress stack events discarded because they refer to an unknown service. This measurement indicates that ComAgent is improperly configured to support a local application.

**Collection Interval:** 30 min

**Peg Condition:** User Layer submits to ComAgent a non-reliable or non-request (G=0 or R=0) egress stack event that refers to an unknown service.

**Measurement Scope:** Server

**Recovery:**

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

**CATxDscrdUnkServer**

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of egress events discarded because the destination server was unknown/not configured.

**Collection Interval:** 30 min

**Peg Condition:** For each egress StackEvent that is discarded by ComAgent Stack, due to unknown destination ip address contents in StackEvent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

## CATxDscrdUnregSvc

**Measurement Group:** ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of egress stack events discarded because they reference a known service that has no registered User Layer.

**Collection Interval:** 30 min

**Peg Condition:** User Layer submits to ComAgent an egress stack event that refers to a known service that lacks a registered User Layer.

**Measurement Scope:** Server

**Recovery:**

A non-zero measurement indicates that a local application is malfunctioning and is attempting to use a service for which it has not registered. 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 24: 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

Measurement Tag	Description	Collection Interval
CADSTx	Number of User Data egress events specifically for the default Direct Service.	30 min
CAHSTxRsrc	Number of egress stack events that were routed to a known Resource.	30 min
CAHSTxRsrcRateAvg	Average rate per second of egress stack events routed to a known Resource.	30 min
CAHSTxRsrcRateMax	Maximum rate per second of egress stack events routed to a known Resource	30 min
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

Measurement Tag	Description	Collection Interval
CARxSuccess	Number of User Data ingress events successfully routed to local layers.	30 min
CATransEndAbnorm	Number of reliable transactions that terminated abnormally.	30 min
CATransEndAbnormRateAvg	Average rate per second that ComAgent transactions ended abnormally during the collection interval.	30 min
CATransEndAbnormRateMax	Maximum rate per second that ComAgent transactions ended abnormally during the collection interval.	30 min
CATransEndNorm	Number of reliable transactions initiated by local User Layers that ended normally with a response from a destination server.	30 min
CATransPendingAvg	Average number of allocated pending transaction records over the collection interval.	30 min
CATransPendingMax	Maximum number of allocated pending transaction records.	30 min
CATransRateAvg	Average rate per second that ComAgent transactions were started during the collection interval.	30 min
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



Measurement Tag	Description	Collection Interval
CATxSuccess	Number of User Data egress events successfully delivered to a peer server.	30 min

## CAAvgDataFIFOQueueUtil

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed

**Description:** Average percentage of ComAgent DataFIFO Queue Utilization.

**Collection Interval:** 30 min

**Peg Condition:** The average ComAgent connection DataFIFO Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

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

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

## CAAvgMxFIFOQueueUtil

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed

**Description:** Average percentage of ComAgent MxFIFO Queue Utilization.

**Collection Interval:** 30 min

**Peg Condition:** The average ComAgent connection MxFIFO Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

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

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

### CAAvgQueueUtil

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed

**Description:** Average percentage of Queue Utilization.

**Collection Interval:** 30 min

**Peg Condition:** The average ComAgent Egress Task Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

### CAAvgRsrcPoolUtil

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Average percentage of internal resource pool utilization.

**Collection Interval:** 30 min

**Peg Condition:** This is to track the measure of average usage of the internal resource (Ex: CommMessage Resource pool) for a given interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

### CAAvgRxStackEvents

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Average Number of User Data ingress events received.

**Collection Interval:** 30 min

**Peg Condition:** The average User Data ingress StackEvent sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CAAvgTxStackEvents

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average Number of User Data egress events received from stacks to deliver it to remote.

**Collection Interval:** 30 min

**Peg Condition:** The average User Data egress StackEvent sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CADSTx

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data egress events specifically for the default Direct Service.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data egress StackEvent received specifically for the default Direct Service and processed by ComAgent Stack.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CAHSTxRsrc

**Measurement Group:** ComAgent Performance, ComAgent Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Number of egress stack events that were routed to a known Resource.

**Collection Interval:** 30 min

**Peg Condition:** User Layer submits to ComAgent an egress stack event destined to a known Resource.

**Measurement Scope:** Server

**Recovery:**

No action required.

### CAHSTxRsrcRateAvg

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Average rate per second of egress stack events routed to a known Resource.

**Collection Interval:** 30 min

**Peg Condition:** Based upon the SysMetric.

**Measurement Scope:** Server

**Recovery:**

No action required.

**CAHSTxRsrcRateMax**

**Measurement Group:** ComAgent Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by Resource ID)

**Description:** Maximum rate per second of egress stack events routed to a known Resource.

**Collection Interval:** 30 min

**Peg Condition:** Based upon the SysMetric.

**Measurement Scope:** Server

**Recovery:**

No action required.

**CAPeakDataFIFOQueueUtil**

**Measurement Group:** ComAgent Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed

**Description:** Maximum percentage of ComAgent DataFIFO Queue Utilization.

**Collection Interval:** 30 min

**Peg Condition:** The maximum ComAgent DataFIFO Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

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

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

**CAPeakMxFIFOQueueUtil**

**Measurement Group:** ComAgent Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed

**Description:** Maximum percentage of ComAgent MxFIFO Queue Utilization.

**Collection Interval:** 30 min

**Peg Condition:** The maximum ComAgent connection MxFIFO Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

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

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

## CAPeakQueueUtil

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Maximum percentage of Queue Utilization.

**Collection Interval:** 30 min

**Peg Condition:** The maximum ComAgent Egress Task Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

## CAPeakRsrcPoolUtil

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Maximum percentage of internal resource pool utilization.

**Collection Interval:** 30 min

**Peg Condition:** This is to track the measure of maximum usage of the internal resource (Ex: CommMessage Resource pool) for a given interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

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

### CAPeakRxStackEvents

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Maximum Number of User Data ingress events received.

**Collection Interval:** 30 min

**Peg Condition:** The maximum User Data ingress StackEvent sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CAPeakTxStackEvents

**Measurement Group:** ComAgent Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Maximum Number of User Data egress events received from stacks to deliver it to remote.

**Collection Interval:** 30 min

**Peg Condition:** The maximum User Data egress StackEvent sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

### CAPSTxGrp

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Group ID)

**Description:** The number of egress stack events submitted to the Peer Group Service to be routed to a known Peer Group.

**Collection Interval:** 30 min

**Peg Condition:** For each stack event submitted to ComAgent Peer Group Service by a local User Layer

**Measurement Scope:** Server

**Recovery:**

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

### CAPSTxGrpSuccess

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Group ID)

**Description:** The number of egress stack events successfully routed to a known Peer Group.

**Collection Interval:** 30 min

**Peg Condition:** For each stack event submitted to ComAgent Peer Group Service by a local User Layer and successfully routed

**Measurement Scope:** Server

**Recovery:**

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

### CARSTx

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of stack events submitted to a Routed Service for routing.



**Collection Interval:** 30 min

**Peg Condition:** Stack event submitted to ComAgent Routed Service by a local User Layer

**Measurement Scope:** Server

**Recovery:**

No action necessary

### CARx

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data ingress events received from a peer server.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data StackEvent received from one of the configured peer and processed by Communication Agent Stack.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

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

### CARxBundled

**Measurement Group:** ComAgent Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of ComAgent Bundled events received by ComAgent

**Peg Condition:** Each time a ComAgent Bundled event is received by ComAgent

**Collection Interval:** 30 min

**Measurement Scope:** Site

**Recovery:**

No action required

## CARxEventsBundled

**Measurement Group:** ComAgent Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of stackevents received in ComAgent Bundled events

**Peg Condition:** Each time a stackevent is received in ComAgent Bundled events

**Collection Interval:** 30 min

**Measurement Scope:** Site

**Recovery:**

No action required

## CARxSuccess

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data ingress events successfully routed to local layers.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data StackEvent received from a peer server and successfully transmitted to the local stack.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

## CATransEndAbnorm

**Measurement Group:** ComAgent Exception, ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions that terminated abnormally.

**Collection Interval:** 30 min

**Peg Condition:**

- Transaction times-out waiting for a response, and the maximum number of transmits has been reached.

- Transaction time-to-live limit is exceeded.
- Transaction terminated due to lack of resources.

**Note:** This measurement is NOT pegged for these conditions:

- Transaction involves an unknown service.
- Transaction involves an unregistered Routed Service.

**Measurement Scope:** Server

**Recovery:**

1. Check the ComAgent Exception report to further diagnose the reasons why transactions are failing.
2. 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.

**Measurement Scope:** Server

**Recovery:**

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.

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.

**Measurement Scope:** Server

**Recovery:**

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.

No action necessary.

### CATransEndNorm

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions initiated by local User Layers that ended normally with a response from a destination server.

**Collection Interval:** 30 min

**Peg Condition:** When a valid reliable response stack event (G=1, A=1) is received that corresponds to a pending transaction record.

**Measurement Scope:** Server

**Recovery:**

No action necessary.

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

### CATransPendingAvg

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Average number of allocated pending transaction records over the collection interval.

**Collection Interval:** 30 min

**Peg Condition:** Average number of allocated pending transaction records during the collection interval.

**Measurement Scope:** Server

**Recovery:**

No action necessary.

### CATransPendingMax

**Measurement Group:** ComAgent Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Maximum number of allocated pending transaction records.

**Collection Interval:** 30 min

**Peg Condition:** When a pending transaction record is allocated, and the total count of allocated pending transaction records exceeds the current peak.

**Measurement Scope:** Server

**Recovery:**

No action necessary.

### CATransRateAvg

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Average rate per second that ComAgent transactions were started during the collection interval.

**Collection Interval:** 30 min

**Peg Condition:** Transaction rate monitoring is an average rate using an exponential smoothing algorithm. The average transaction rate is a running average, smoothed over approximately 10 seconds.

**Measurement Scope:** Server

**Recovery:**

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.

No action necessary.

### CATransRateMax

**Measurement Group:** ComAgent Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Maximum rate per second that ComAgent transactions were started during the collection interval.

**Collection Interval:** 30 min

**Peg Condition:** Transaction rate monitoring is an average rate using an exponential smoothing algorithm. The average transaction rate is a running average, smoothed over approximately 10 seconds.

**Measurement Scope:** Server

**Recovery:**

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.

No action necessary.

## CATransStarted

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Number of reliable transactions initiated by local User Layers.

**Collection Interval:** 30 min

**Peg Condition:** When a valid reliable request stack event (G=1, R=1) is received from a local User Layer.

**Measurement Scope:** Server

**Recovery:**

No action necessary.

## CATransTimeAvg

**Measurement Group:** ComAgent Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Average transaction life-time in milliseconds.

**Collection Interval:** 30 min

**Peg Condition:** Transaction ends either normally or abnormally.

**Measurement Scope:** Server

**Recovery:**

No action necessary.

## CATransTimeMax

**Measurement Group:** ComAgent Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by Service ID)

**Description:** Maximum transaction life-time in milliseconds.

**Collection Interval:** 30 min

**Peg Condition:** Transaction ends either normally or abnormally.

**Measurement Scope:** Server

**Recovery:**

No action necessary.

## CATx

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data egress events received on Communication Agent task queue from local stacks to deliver it to a peer server.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data egress StackEvent received and processed by Communication Agent Stack.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

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

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

## CATxBundled

**Measurement Group:** ComAgent Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of ComAgent Bundled events transmitted by ComAgent

**Peg Condition:** Each time a ComAgent Bundled event is transmitted by ComAgent

**Collection Interval:** 30 min

**Measurement Scope:** Site

**Recovery:**

No action required

## CATxEventsBundled

**Measurement Group:** ComAgent Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of stackevents transmitted through ComAgent Bundled events

**Peg Condition:** Each time a stackevent is transmitted through ComAgent Bundled events

**Collection Interval:** 30 min

**Measurement Scope:** Site

**Recovery:**

No action required

## CATxSuccess

**Measurement Group:** ComAgent Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of User Data egress events successfully delivered to a peer server.

**Collection Interval:** 30 min

**Peg Condition:** For each User Data egress StackEvent transmitted to the peer server.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

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

## Computer Aided Policy Making (CAPM) measurements

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

**Table 25: 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



Measurement Tag	Description	Collection Interval
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_RxRejectWithErrAnswer	The number of Request messages from a downstream peer rejected by a Local Node when an indication from mediation to send back an error answer is received	5 min
CAPM_RxSilentDiscard	The number of Request messages from a downstream peer silently by a Local Node when an indication from mediation to discard the request is received	5 min
CAPM_RxRedirectHost	The number of times the Request was redirected with the 3006 response sent by Mediation.	5 min
CAPM_RxRedirectRealm	The number of times the Request was redirected with the 3011 response sent by Mediation.	5 min
CAPM_RxProcessNAI	The number of times the Request was modified by the "Process Decorated NAI" Mediation action.	5 min
CAPM_Match_Rule	Array of measurements for pegged rules. An element of the array shows how many times a rule matched on an MP	5 min

## CAPM\_Temp\_Invoked

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Mediation Rule Template ID)

**Description:** Indicates the number of times a Rule Template has been invoked. This counter is incremented on a per Rule Template basis every time the Rule Template is processed.

**Collection Interval:** 5 min

**Peg Condition:** A Rule Template is invoked during the message processing.

**Measurement Scope:** Server Group

**Recovery:**

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

### CAPM\_CondSet\_True

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Mediation Rule Template ID)

**Description:** Indicates the number of times a condition set has been evaluated to True. This counter is incremented on a per Rule Template basis every time all the conditions of the condition set match.

**Collection Interval:** 5 min

**Peg Condition:** A Condition Set matches during the message processing.

**Measurement Scope:** Server Group

**Recovery:**

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

### CAPM\_Action\_Set\_Fails

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Mediation Rule Template ID)

**Description:** Indicates the number of times a failure has occurred while executing the action set. This counter is incremented on a per Rule Template basis every time some of the actions fails.

**Note:** This counter is incremented only once even if several actions within an action set have failed.

**Collection Interval:** 5 min

**Peg Condition:** At least one action within an Action Set has failed.

**Measurement Scope:** Server Group

**Recovery:**

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

## CAPM\_Match\_Rule

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Mediation Rule Template ID)

**Description:** The array of measurements for pegged rules. An element of the array shows how many times a rule matched on an MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time the MessageCopy action has been invoked successfully.

**Measurement Scope:** Server Group

**Recovery:**

No action required

## CAPM\_MsgCopyTriggered

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Mediation Rule Template ID)

**Description:** The number of times the MessageCopy action has been invoked successfully.

**Collection Interval:** 5 min

**Peg Condition:** Each time the MessageCopy action has been invoked successfully.

**Measurement Scope:** Server Group

**Recovery:**

No action required

## CAPM\_RxRejectWithErrorAnswer

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Transport Connection)

**Description:** The number of Request messages from a downstream peer rejected by a Local Node when an indication from mediation to send back an error answer is received

**Collection Interval:** 5 min

**Peg Condition:** When mediation indicates to send back an answer

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### **CAPM\_RxSilentDiscard**

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Transport Connection)

**Description:** The number of Request messages from a downstream peer silently by a Local Node when an indication from mediation to discard the request is received

**Collection Interval:** 5 min

**Peg Condition:** When mediation indicates to silently discard the request

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### **CAPM\_RxRedirectHost**

**Measurement Group:** CAPM

**Measurement Type:** Simple

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

**Description:** The number of times the Request was redirected with the 3006 response sent by Mediation

**Collection Interval:** 5 min

**Peg Condition:** When the action "Redirect Request-Host" successfully executes

**Measurement Scope:** Site

**Recovery:**

No action required.

### **CAPM\_RxRedirectRealm**

**Measurement Group:** CAPM

**Measurement Type:** Simple

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

**Description:** The number of times the Request was redirected with the 3011 response sent by Mediation

**Collection Interval:** 5 min

**Peg Condition:** When the action "Redirect Request-Realm" successfully executes

**Measurement Scope:** Site

**Recovery:**

No action required.

## CAPM\_RxProcessNAI

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Template Name)

**Description:** The number of times the Request was modified by the "Process Decorated NAI" Mediation action

**Collection Interval:** 5 min

**Peg Condition:** When the action "Process Decorated NAI" successfully executes

**Measurement Scope:** Site

**Recovery:**

No action required.

## CAPM\_Match\_Rule

**Measurement Group:** CAPM

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Mediation Rule Template ID)

**Description:** The array of measurements for pegged rules. An element of the array shows how many times a rule matched on an MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time the MessageCopy action has been invoked successfully.

**Measurement Scope:** Server Group

**Recovery:**

No action required

## Connection Congestion measurements

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

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

Table 26: Connection Congestion Measurement Report Fields

Measurement Tag	Description	Collection Interval
ConnOnsetCL1	The number of times the connection experienced the onset of CL1.	5 min
ConnOnsetCL2	The number of times the connection experienced the onset of CL2.	5 min
ConnOnsetCL3	The number of times the connection experienced the onset of CL3.	5 min
ConnOnsetCL4	The number of times the connection experienced the onset of CL4.	5 min
EvEmrCongestionOnset	Number of times an EMR Congestino Level was advanced	5 min
EvRemoteBusyCongestion	Number of times Remote Busy Congestion occurred.	5 min
EvSmoothedEmrPeak	Smoothed EMR Peak.	5 min
EvSmoothedEmrAvg	Smoothed EMR Average.	5 min
RxRejectedConnCongestion	Number of Request messages from a downstream peer rejected by a Local Node because of Diameter Connection Congestion.	5 min
TmConnInCL1	Total amount of time (in seconds) the connection experienced CL1.	5 min
TmConnInCL2	Total amount of time (in seconds) the connection experienced CL2.	5 min
TmConnInCL3	Total amount of time (in seconds) the connection experienced CL3.	5 min
TmConnInCL4	Total amount of time (in seconds) the connection experienced CL4.	5 min

**ConnOnsetCL1****Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** The number of times the connection experienced the onset of CL1.

**Collection Interval:** 5 min

**Peg Condition:** Each time the congestion level for a connection changes from CL0 to CL1

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, determine if either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. Check to see if the Remote Busy Abatement Timeout is too small.
3. Verify whether or not other connections to the adjacent Diameter node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. Examine if the connection is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.

### ConnOnsetCL2

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** The number of times the connection experienced the onset of CL2.

**Collection Interval:** 5 min

**Peg Condition:** Each time the congestion level for a connection changes from CL0 or CL1 to CL2.

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, determine if either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. Check to see if the Remote Busy Abatement Timeout is too small.
3. Verify whether or not other connections to the adjacent Diameter node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. Examine if the connection is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.

### ConnOnsetCL3

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** The number of times the connection experienced the onset of CL3.

**Collection Interval:** 5 min

**Peg Condition:** Each time the congestion level for a connection changes from CL0, CL1, or CL2 to CL3

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, determine if either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. Check to see if the Remote Busy Abatement Timeout is too small.
3. Verify whether or not other connections to the adjacent Diameter node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. Examine if the connection is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.

### ConnOnsetCL4

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** The number of times the connection experienced the onset of CL4.

**Collection Interval:** 5 min

**Peg Condition:** Each time the congestion level for a connection changes from CL0, CL1, CL2, or CL3 to CL4.

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, determine if either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. Check to see if the Remote Busy Abatement Timeout is too small.
3. Verify whether or not other connections to the adjacent Diameter node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. Examine if the connection is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.

### EvEmrCongestionOnset

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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



**Description:** Number of times an EMR Congestion Level was advanced

**Collection Interval:** 5 min

**Peg Condition** Each time the EMR Congestion Level is advanced

**Measurement Scope:**

**Recovery:** Site

1. Verify the "Maximum EMR" for the connection is set sufficiently high.
2. Verify the EMR onset/abatement thresholds are properly adjusted. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "Smoothing Factor" parameter for the connection is properly adjusted. Increasing the "Smoothing Factor" value places more weight towards the current EMR over the smoothed EMR. Decreasing the "Smoothing Factor" value places more weight towards the smoothed EMR over the current EMR.
4. Verify the "EMR Abatement Timeout" for the connection is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Check to see if other connections to the adjacent Diameter Node are out of service. Adjacent Diameter nodes being out of service can cause more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
6. Check to see if the connection is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvRemoteBusyCongestion

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** Number of times Remote Busy Congestion occurred.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Remote Busy Congestion Level changed from CL0 to either CL1, CL2 or CL3.

**Measurement Scope:** Site

**Recovery:**

1. Verify the "Maximum EMR" for the connection is set sufficiently high.
2. Verify the EMR onset/abatement thresholds are properly adjusted. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "Smoothing Factor" parameter for the connection is properly adjusted. Increasing the "Smoothing Factor" value places more weight towards the current EMR over the smoothed EMR. Decreasing the "Smoothing Factor" value places more weight towards the smoothed EMR over the current EMR.
4. Verify the "Remote Busy Abatement Timeout" for the connection is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.

5. Check to see if other connections to the adjacent Diameter Node are out of service. Adjacent Diameter nodes being out of service can cause more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
6. Check to see if the connection is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

### EvSmoothedEmrAvg

**Measurement Group:** Connection Congestion

**Measurement Type:** Average

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

**Description:** Average of the “Smoothed EMR” calculations made during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** A “Smoothed EMR” calculation  $St$  is periodically calculated (every 90ms). Each time  $St$  is calculated, then the “Average Smoothed EMR” measurement shall be updated. For example, if 3 Smoothed EMR values were calculated during the collection interval – 10, 14 and 9 respectively, then the “Average Smoothed EMR” would be:  $11 ((10+14+ 9)/3)$

**Measurement Scope:** Site

**Recovery:**

No action necessary.

### EvSmoothedEmrPeak

**Measurement Group:** Connection Congestion

**Measurement Type:** Max

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

**Description:** Peak “Smoothed EMR” calculation made during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** A “Smoothed EMR” calculation  $St$  is periodically calculated (every 90ms). If the new  $St$  exceeds any previous  $St-k$  value for the collection interval, then this measurement will be updated with the new  $St$  value. For example, if 3 Smoothed EMR values were calculated during the collection interval – 10, 14 and 9 respectively, then the “Peak Smoothed EMR” would be:  $14 = \text{Max}(10, 14, 9)$

**Measurement Scope:** Site

**Recovery:**

No action necessary.

### RxRejectedConnCongestion

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** Number of Request messages from a downstream peer rejected by a Local Node because of Diameter Connection Congestion.

**Collection Interval:** 5 min

**Peg Condition:** Each time an ingress transaction is abandoned and the Routing Option Set "Connection Congestion" action is invoked.

**Measurement Scope:** Site

**Recovery:**

No action required.

## TmConnInCL1

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** Total amount of time (in seconds) the connection experienced CL1.

**Collection Interval:** 5 min

**Peg Condition:** A "time duration interval" is determined as follows:

The "time duration interval" starts when one of the following occurs:

- New "collection interval" for the measurement begins and the connection congestion level is CL1.
- Connection congestion level changes to CL1.

The "time duration interval" stops when one of the following occurs:

- The collection interval for the measurement ends.
- The connection congestion level changes from CL1 to another congestion level.

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. The "Remote Bust Abatement Timeout" may be too small.
3. This problem can be caused if other connections to the adjacent Diameter Node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. The connection may be over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.
5. Contact [My Oracle Support \(MOS\)](#) for further assistance.

## TmConnInCL2

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** Total amount of time (in seconds) the connection experienced CL2.

**Collection Interval:** 5 min

**Peg Condition:** A "time duration interval" is determined as follows:

The "time duration interval" starts when one of the following occurs:

- New "collection interval" for the measurement begins and the connection congestion level is CL2.
- Connection congestion level changes to CL2.

The "time duration interval" stops when one of the following occurs:

- The collection interval for the measurement ends.
- The connection congestion level changes from CL2 to another congestion level.

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. The "Remote Bust Abatement Timeout" may be too small.
3. This problem can be caused if other connections to the adjacent Diameter Node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. The connection may be over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.
5. Contact [My Oracle Support \(MOS\)](#) for further assistance.

## TmConnInCL3

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** Total amount of time (in seconds) the connection experienced CL3.

**Collection Interval:** 5 min

**Peg Condition:** A "time duration interval" is determined as follows:

The "time duration interval" starts when one of the following occurs:

- New "collection interval" for the measurement begins and the connection congestion level is CL3.
- Connection congestion level changes to CL3.

The "time duration interval" stops when one of the following occurs:

- The collection interval for the measurement ends.
- The connection congestion level changes from CL3 to another congestion level.

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. The "Remote Bust Abatement Timeout" may be too small.
3. This problem can be caused if other connections to the adjacent Diameter Node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. The connection may be over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.
5. Contact [My Oracle Support \(MOS\)](#) for further assistance.

## TmConnInCL4

**Measurement Group:** Connection Congestion

**Measurement Type:** Simple

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

**Description:** Total amount of time (in seconds) the connection experienced CL4.

**Collection Interval:** 5 min

**Peg Condition:** A "time duration interval" is determined as follows:

The "time duration interval" starts when one of the following occurs:

- New "collection interval" for the measurement begins and the connection congestion level is CL4.
- Connection congestion level changes to CL4.

The "time duration interval" stops when one of the following occurs:

- The collection interval for the measurement ends.
- The connection congestion level changes from CL4 to another congestion level.

**Measurement Scope:** Server Group

**Recovery:**

1. If EMR Throttling is enabled for the connection, either the maximum EMR may be set too high or the onset/abatement thresholds need adjustment.
2. The "Remote Bust Abatement Timeout" may be too small.
3. This problem can be caused if other connections to the adjacent Diameter Node are out of service, thus causing more traffic to be sent on this connection than what the adjacent Diameter Node can support on a per-connection basis.
4. The connection may be over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to this connection.
5. Contact [My Oracle Support \(MOS\)](#) for further assistance.

## 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 27: Connection Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
EvConnCerValFail	The number of times a CER contained invalid or unsupported AVP or AVP value.	5 min
EvConnCexIpChkFail	The Host-IP-Address AVP(s) received in a CER or CEA message from the peer did not match the actual peer connection's IP address(es).	5 min
EvConnCnxFail	Number of times the transport connection attempt failed. This includes only unsuccessful attempts to connect to the peer; it does not include failure of established connections.	5 min
EvConnDnsFail	Number of times an attempt to resolve a peer's FQDN to an IP address via DNS failed.	5 min
EvConnFarEndClose	Number of times the far end closed the connection.	5 min
EvConnManClose	Number of times the connection was manually closed via administratively Disabling the connection locally.	5 min
EvConnPeerNumIpFail	The peer has advertised in the INIT/INIT_ACK chunk a number of IP addresses different from the number of IP addresses the peer has been configured with in the respective connection object.	5 min
EvConnRelease	The number of times the connection was terminated based on a connection release request from DRL	5 min

Measurement Tag	Description	Collection Interval
EvSockInitFail	Number of times the socket initialization failed.	5 min
EvConnTransFail	The number of times the connection was closed due to SCTP/TCP transport failure.	5 min
RxConnGapAckBlocks	The number of gap acknowledgement blocks received on the SCTP connection.	5 min
TxConnRetransDataChunks	The number of retransmitted data chunks sent on the SCTP connection.	5 min
RxConnDupPkts	The number of duplicate packets received on the TCP connection.	5 min
TxConnRetransSegs	The number of retransmitted segments sent on the TCP connection.	5 min
TxConnSendFail	Number of times the transport send failed for any message on an established connection. When this occurs, the transport connection will NOT be disconnected.	5 min

## EvConnCerValFail

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** CER contained invalid or unsupported AVP or AVP value.

**Collection Interval:** 5 min

**Peg Condition:** Inband-Security AVP value in CER was other than 0 (NO\_INBAND\_SECURITY).

**Measurement Scope:** Server Group

**Recovery:**

1. Disable peer's use of inband security.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvConnCexIpChkFail

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The Host-IP-Address AVP(s) received in a CER or CEA message from the peer did not match the actual peer connection's IP address(es).

**Collection Interval:** 5 min

**Peg Condition:** On receipt of CER/CEA message from the peer for which the Host-IP-Address AVP(s) received in a CER or CEA message from the peer did not match the actual peer connection's IP address(es).

**Measurement Scope:** Server Group

**Recovery:**

1. Diagnose peer to resolve inconsistency.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvConnCnxFail

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times the transport connection attempt failed. This includes only unsuccessful attempts to connect to the peer; it does not include failure of established connections.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when the DSR attempts to initiate a connection to a peer and fails.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement indicates an excessive number of failed connection attempts, check that the peer is operational, and that it is accepting connections on the SCTP/TCP listen port configured for the Peer Node.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvConnDnsFail

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times an attempt to resolve a peer's FQDN to an IP address via DNS failed.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a connection is closed without the peer sending a DPR.



**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement indicates an excessive number of DNS resolution failures, examine the DNS configuration values to determine if the correct DNS servers are being queried.
2. Examine the DNS configuration of the configured DNS servers.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvConnFarEndClose

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times the far end closed the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when the peer closes the connection.

**Measurement Scope:** Server Group

**Recovery:**

If this measurement indicates an excessive number of peer disconnects, the Alarm History and measurements [RxConnDpr](#), [RxConnDwr](#), and [TxConnDwa](#) should be examined to determine the reason for the peer disconnects.

## EvConnManClose

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection was manually closed via administratively disabling the connection locally.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a user disables a connection from the GUI.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## EvConnPeerNumIpFail

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The peer has advertised in the INIT/INIT\_ACK chunk a number of IP addresses different from the number of IP addresses the peer has been configured with in the respective connection object.

**Collection Interval:** 5 min

**Peg Condition:** The peer advertised a different number of IP addresses than configured.

**Measurement Scope:** Server Group

**Recovery:**

Check the peer configuration on the local node and the networking configuration on the peer itself with regard to which IP addresses the peer shall advertise using the **Diameter > Configuration > System Options** page.

### EvConnRelease

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection was terminated based on a connection release request from DRL.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a connection terminated successfully on request from DRL.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### EvSockInitFail

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times the socket initialization failed.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when the DSR attempts to apply the SCTP/TCP socket options to a peer connection and fails.

**Measurement Scope:** Server Group

**Recovery:**

Check the SCTP/TCP options in the Connection Configuration Set for the connection and correct them.

**EvConnTransFail**

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times the transport connection was closed due to SCTP/TCP transport failure.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a connection is closed without the peer sending a DPR.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement indicates an excessive number of ungraceful peer disconnects the Alarm History should be examined to determine the reason for the peer disconnects.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxConnDupPkts**

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of duplicate packets received on the TCP connection.

**Collection Interval:** 5 min

**Peg Condition:** When duplicate packet is received on the TCP connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**RxConnDupTsns**

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of duplicate TSNs received on the SCTP connection.

**Collection Interval:** 5 min

**Peg Condition:** When there is a duplicate TSN received on the SCTP connection from the remote peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxConnGapAckBlocks

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of gap acknowledgement blocks received on the SCTP connection.

**Collection Interval:** 5 min

**Peg Condition:** When there is a gap in the Peer's received subsequences of data chunks as represented by their Transport Sequence Numbers (TSNs).

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxConnGapAckBlocks

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of gap acknowledgement blocks received on the SCTP connection.

**Collection Interval:** 5 min

**Peg Condition:** When there is a gap in the Peer's received subsequences of data chunks as represented by their Transport Sequence Numbers (TSNs).

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxConnRetransDataChunks

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of retransmitted data chunks sent on the SCTP connection.

**Collection Interval:** 5 min

**Peg Condition:** When a data chunk is retransmitted on the SCTP connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxConnRetransSegs**

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of retransmit segments sent on the TCP connection.

**Collection Interval:** 5 min

**Peg Condition:** When a retransmitted segment is sent on the TCP connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxConnSendFail**

**Measurement Group:** Connection Exception

**Measurement Type:** Simple

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

**Description:** The number of times the transport send failed for any message on an established connection. When this occurs, the transport connection will NOT be disconnected.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when the DSR is unable to send a message on the connection

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement indicates an excessive number of send failures, examine the [TxConnSendBufPeak](#) and [TxConnSendBufAvg](#) measurements.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**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 28: Connection Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvConnCnxSuccess	Number of times the transport connection was successfully established. In instances where two connections are established and one is disconnected after an election, both connection establishments are counted.	5 min
EvPerConnQueueCongestionChange	Number of times that the congestion level changed for a Connection.	5 min
RxConnAvgMPS	Exponentially smoothed average rate in MPS on the connection. Note: This measurement will be sampled periodically and reported in the Connections Maintenance GUI as a type of KPI.	5 min
RxConnMsgs	Number of messages received on the connection. This includes all Diameter messages, both routable and non-routable.	5 min
RxConnOctets	Number of octets received on the connection. This includes Diameter payload octets for all Diameter messages, both routable and non-routable.	5 min
RxConnPeakMPS	Peak rate of the exponentially smoothed average rate in MPS on the connection	5 min
RxConnRecvBufAvg	Average number of bytes in the SCTP/TCP receive buffer. The bytes in the receive buffer are those received from the peer but not yet read by the peer state machine.	5 min
RxConnRecvBufPeak	Peak number of bytes in the SCTP/TCP receive buffer. The bytes in the receive buffer are those received from the peer but not yet read by the peer state machine.	5 min

Measurement Tag	Description	Collection Interval
RTxConnTotalDataChunks	The number of total data chunks received on the SCTP connection.	5 min
RxMsgRateAvg	Average Connection Ingress Message Rate.	5 min
RxMsgRatePeak	Peak Connection Ingress Message Rate.	5 min
RxSctpChunkMp	Number of SCTP data chunks received by the MP (excluding duplicates).	5 min
RxSctpPacketMp	Number of SCTP packets received by the MP (excluding duplicates).	5 min
TxConnMsgs	Number of messages sent on the connection. This includes all Diameter messages, both routable and non-routable.	5 min
TxConnOctets	Number of octets sent on the connection. This includes Diameter payload octets for all Diameter messages, both routable and non-routable.	5 min
TxConnSendBufAvg	Average number of bytes in the SCTP/TCP send buffer. The SCTP/TCP send buffer contains all bytes sent to the SCTP/TCP socket by the peer state machine which have not yet been sent to the peer or have been sent to the peer and have not been unacknowledged.	5 min
TxConnSendBufPeak	Peak number of bytes in the SCTP/TCP send buffer. The SCTP/TCP send buffer contains all bytes sent to the SCTP/TCP socket by the peer state machine which have not yet been sent to the peer or have been sent to the peer and have not been unacknowledged.	5 min
TxConnTotalDataChunks	The number of total data chunks sent on the SCTP connection.	5 min
TxPerConnQueueAvg	Per Connection Egress Message Queue Average Utilization.	5 min

Measurement Tag	Description	Collection Interval
TxPerConnQueuePeak	Per Connection Egress Message Queue Peak Utilization.	5 min

## EvConnCnxSuccess

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of times the transport connection was successfully established. In instances where two connections are established and one is disconnected after an election, both connection establishments are counted.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a socket connection is made, regardless of which side initiates the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## EvPerConnQueueCongestionChange

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of times that the congestion level changed for a Per Connection Egress Queue.

**Collection Interval:** 5 min

**Peg Condition:** Each time the congestion level for a Per Connection Egress Queue was changed.

**Measurement Scope:** Server Group

**Recovery:**

1. An IP network, or Diameter peer, problem may exist thus preventing SCTP/TCP from transmitting messages into the network at the same pace that messages are being received from the network.
2. The transport task associated with the connection may be experiencing a problem, preventing it from processing events from its Connection Event Message Queue. The alarm log should be examined using the **Alarms & Events** page.
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. MP server status can be monitored using the **Status & Manage > Server** page.



4. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored using the **Status & Manage > KPIs** page. 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 using 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.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxConnAvgMPS

**Measurement Group:** Connection Performance

**Measurement Type:** Average

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

**Description:** Exponentially smoothed average rate in MPS on the connection.

**Note:** This measurement will be sampled periodically and reported in the Connections Maintenance GUI as a KPI.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is driven by the SysMetric.

**Measurement Scope:** Per network, per NE, per MP server

**Recovery:**

This measurement indicates the exponentially smoothed 30-second average of the ingress messages per second over the measurement reporting interval. The average rate is exponentially smoothed over a 30 second interval to help eliminate variance caused by bursts in the ingress message rate. This measurement, if reported periodically, provides a history of the ingress messaging rate for each connection.

This measurement can also be seen in near real-time by viewing the connection status screen (**Diameter > Maintenance > Connections**).

No action required.

## RxConnMsgs

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of messages received on the connection. This includes all Diameter messages, both routable and non-routable.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is received from the peer on the connection. This measurement is pegged for all messages accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnOctets

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of octets received on the connection. This includes Diameter payload octets for all Diameter messages, both routable and non-routable.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is received from the peer on the connection. This measurement is pegged for all messages accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnPeakMPS

**Measurement Group:** Connection Performance

**Measurement Type:** Max

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

**Description:** Peak rate of the exponentially smoothed average rate in MPS on the connection.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is driven by the SysMetric.

**Measurement Scope:** Per network, per NE, per MP server

**Recovery:**

This measurement indicates the highest average rate in ingress messages per second that was processed by the Diameter connection. In other words, this measurement shows the highest value of measurement ConnIngressAvgMPS during the measurement reporting interval.

No action required.

### RxConnRecvBufAvg

**Measurement Group:** Connection Performance

**Measurement Type:** Average

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

**Description:** The average number of bytes in the SCTP/TCP receive buffer. The bytes in the receive buffer are those received from the peer but not yet read by the peer state machine.

**Collection Interval:** 5 min

**Peg Condition:** Periodically (currently once a second) the depth of the socket receive buffer is measured and the value used to update this measurement.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement is at or above 80%, this may be an indication that the SCTP/TCP socket receive buffer size is too small, or that the Local Node is unable to handle the load it is presented. Increase the SCTP/TCP Socket Receive Buffer Size from the Connection Configuration Set for this connection.
2. If this does not improve the situation, consider load-sharing with other DSRs.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxConnRecvBufPeak

**Measurement Group:** Connection Performance

**Measurement Type:** Max

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

**Description:** The peak number of bytes in the SCTP/TCP receive buffer. The bytes in the receive buffer are those received from the peer but not yet read by the peer state machine.

**Collection Interval:** 5 min

**Peg Condition:** Periodically (currently once a second) the depth of the socket receive buffer is measured and the value used to update this measurement.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement exceeds the SCTP/TCP socket receive buffer size, this may be an indication that the SCTP/TCP socket receive buffer size is too small, or that the Local Node is unable to handle the load it is presented. Increase the SCTP/TCP Socket Receive Buffer Size from the Connection Configuration Set for this connection.
2. If this does not improve the situation, consider load-sharing with other DSRs.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxConnTotalDataChunks

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of total data chunks received on the SCTP connection.

**Collection Interval:** 5 min

**Peg Condition:** When data chunks are received on the SCTP connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxMsgRateAvg

**Measurement Group:** Connection Performance

**Measurement Type:** Average

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

**Description:** The average connection ingress message rate (in messages per second) measured during the collection interval. The ingress message rate is the number of ingress Diameter messages that are targeted for Relay Agent routing (non-zero Application ID).

**Collection Interval:** 5 min

**Peg Condition:** The average of all connection ingress message rate samples taken during the collection interval.

The connection measurement is associated with the connection from which the 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. 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 \(MOS\)](#).

## RxMsgRatePeak

**Measurement Group:** Connection Performance

**Measurement Type:** Max

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

**Description:** The peak connection ingress message rate (in messages per second) measured during the collection interval. The ingress message rate is the number of ingress Diameter messages that are targeted for Relay Agent routing (non-zero Application ID).

**Collection Interval:** 5 min

**Peg Condition:** The maximum connection ingress message rate (messages per second) sample taken during the collection interval.

The connection measurement is associated with the connection from which the 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. 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 \(MOS\)](#).

## TxConnMsgs

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of messages sent on the connection. This includes all Diameter messages, both routable and non-routable.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is sent to the peer on the connection

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxConnOctets

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of octets sent on the connection. This includes all Diameter messages, both routable and non-routable.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is sent to the peer on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxConnSendBufAvg

**Measurement Group:** Connection Performance

**Measurement Type:** Average

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

**Description:** The average number of bytes in the SCTP/TCP send buffer. The SCTP/TCP send buffer contains all bytes sent to the SCTP/TCP socket by the peer state machine which have not yet been sent to the peer or have been sent to the peer and have not been unacknowledged.

**Collection Interval:** 5 min

**Peg Condition:** Periodically (currently once a second) the depth of the socket send buffer is measured and the value used to update this measurement.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement is at or above 80%, this may be an indication that the peer is unable to handle the load it is presented with. Consider load-sharing with other Peer Nodes.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxConnSendBufPeak

**Measurement Group:** Connection Performance

**Measurement Type:** Max

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

**Description:** The peak number of bytes in the SCTP/TCP send buffer. The SCTP/TCP send buffer contains all bytes sent to the SCTP/TCP socket by the peer state machine which have not yet been sent to the peer or have been sent to the peer and have not been unacknowledged.

**Collection Interval:** 5 min

**Peg Condition:** Periodically (currently once a second) the depth of the socket send buffer is measured and the value used to update this measurement.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxConnTotalDataChunks

**Measurement Group:** Connection Performance

**Measurement Type:** Simple

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

**Description:** The number of total data chunks sent on the SCTP connection.

**Collection Interval:** 5 min

**Peg Condition:** When data chunks are transmitted on the SCTP connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxPerConnQueueAvg

**Measurement Group:** Connection Performance

**Measurement Type:** Average

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

**Description:** The average Per Connection Egress Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Per Connection Egress Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. An IP network or Diameter peer problem may exist that is preventing SCTP/TCP from transmitting messages into the network at the same pace that messages are being received from the network.
2. The transport task associated with the connection may be experiencing a problem preventing it from processing events from its Connection Event Message Queue. The alarm log should be examined using the **Alarms & Events** page.
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. MP server status can be monitored using the **Status & Manage > Server** page.
4. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored using the **Status & Manage > KPIs** page. 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 using 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.

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

## TxPerConnQueuePeak

**Measurement Group:** Connection Performance

**Measurement Type:** Max

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

**Description:** The peak Per Connection Egress Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Per Connection Egress Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

### Recovery:

1. An IP network or Diameter peer problem may exist that is preventing SCTP/TCP from transmitting messages into the network at the same pace that messages are being received from the network.
2. The transport task associated with the connection may be experiencing a problem preventing it from processing events from its Connection Event Message Queue. The alarm log should be examined using the **Alarms & Events** page.
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. MP server status can be monitored using the **Status & Manage > Server** page.
4. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored using the **Status & Manage > KPIs** page. 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 using 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.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## 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 29: 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



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

## RxApplRequestNoRoutes

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by DSR Application ID)

**Description:** Number of Request messages received from a DSR Application that could not be routed.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully receives a Request message from a 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.

**Measurement Scope:** Server Group

### Recovery:

The DSR Application is forwarding Request messages that cannot be routed to a peer. The following problems could exist:

- A Peer Routing Rule could be missing or incorrectly configured.
  - The DSR Application could be incorrectly configured.
  - The Request message from a downstream peer was mis-routed to the DSR.
1. Verify the Peer Routing Rules on the following GUI screen, and make any needed corrections.  
**Diameter>Configuration>Peer Routing Rules**
  2. Verify the DSR Application Id configuration on the following GUI screen, and make any needed corrections.  
**Diameter>Configuration>Application Ids**

## RxApplUnavailable

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Description:** Number of Request messages received for a DSR Application that could not be routed to the DSR Application because the DSR Application was Unavailable.

**Collection Interval:** 5 min

**Peg Condition:** When DRL receives a Request message from a peer that matches an Application Routing Rule, but cannot be routed to the DSR Application because its Operational Status is "Unavailable".

**Measurement Scope:** Server Group

### Recovery:

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).

1. Verify the DSR Application Admin State on the following GUI screen:  
**Diameter>Maintenance>Applications**
2. Verify the DSR Application "Unavailability Action" attribute configuration on the following GUI screen..  
**Diameter>Configuration>Application Ids**

## 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."

**Measurement Scope:** Server Group

**Recovery:**

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).

1. Verify the DSR Application Admin State on the following GUI screen:  
**Diameter>Maintenance>Applications**
2. Verify the DSR Application "Unavailability Action" attribute configuration on the following GUI screen..  
**Diameter>Configuration>Application Ids**

## RxApplUnavailableForRequest

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by DSR Application ID)

**Description:** Number of Request messages received for a DSR Application which could not be routed to DSR Application because it was not available.

**Collection Interval:** 5 min

**Peg Condition:** When DRL receives a Request message from a peer which matches a ART rule but cannot be routed to the DSR Application because its Operational Status was not “Available”.

**Measurement Scope:** Server Group

**Recovery:**

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).

1. Verify the DSR Application Admin State on the following GUI screen:

**Diameter>Maintenance>Applications**

2. Verify the DSR Application "Unavailability Action" attribute configuration on the following GUI screen..

**Diameter>Configuration>Application Ids**

## TxCpaFullDRLRequestReject

**Measurement Group:** DSR Application Exception

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The number of egress Diameter Request messages that were rejected because the DRL’s Request Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message discarded because the “DRL’s Request Queue” was full. Used for congestion control by DSR.

**Measurement Scope:** Server Group

**Recovery:**

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.

- If the problem persists, 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

**Measurement Group:** DSR Application Exception

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Request Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

### Recovery:

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, contact [My Oracle Support \(MOS\)](#).

### TxFabrFullDRLAnswerDiscard

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Answer message discarded because the "All-Connections Event Queue" was full.

**Measurement Scope:** Server Group

**Recovery:**

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, contact [My Oracle Support \(MOS\)](#).

### TxRbarFullDRLRequestReject

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** When a Request message is discarded because the DRL's Request Queue is full.

**Measurement Scope:** Server Group

**Recovery:**

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, contact [My Oracle Support \(MOS\)](#).

**TxRbarFullDRLAnswerDiscard**

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** When an Answer message is discarded because the All-Connections Event Queue is full.

**Measurement Scope:** Server Group

**Recovery:**

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, contact [My Oracle Support \(MOS\)](#).

**TxGlaFullDRLAnswerDiscard**

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** Each time an Answer message is discarded because the "All-Connections Event Queue" was full.

**Measurement Scope:** Server Group

**Recovery:**

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, 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 30: 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%)	5 min



Measurement Tag	Description	Collection Interval
	measured during the collection interval.	
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
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

Measurement Tag	Description	Collection Interval
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
RxGlaRequestMsgQueuePeak	The peak DSR Application's Request Message Queue	5 min

Measurement Tag	Description	Collection Interval
	utilization (0-100%) measured during the collection interval.	
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

Measurement Tag	Description	Collection Interval
TxApplTransSuccess	Number of Transactions initiated by DSR Application that successfully completed	5 min

### RxApplAnswerFwdSuccess

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by DSR Application ID)

**Description:** Number of Answer messages successfully forwarded to a DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully enqueues an Answer message on the DSR Application's internal Message Queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxApplAnswerReceived

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by DSR Application ID)

**Description:** Number of Request messages received from a DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully receives a Request message from a DSR Application.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxApplRequestFwdSuccess

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by DSR Application ID)

**Description:** Number of Request messages successfully forwarded to a DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully enqueues a Request message on the DSR Application's internal Message Queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxApplRequestReceived

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by DSR Application ID)

**Description:** Number of Request messages received from a DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully receives a Request message from a DSR Application.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxCpaAnswerMsgQueueAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Answer Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Answer Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxCpaAnswerMsgQueuePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Answer Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Answer Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxCpaAnswerProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of Answers processed by DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when a Diameter Answer is received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxCpaEventMsgQueueAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average CPA Application Event Message Queue utilization measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average Event Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

### RxCpaEventMsgQueuePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak CPA Application Event Message Queue utilization measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Event Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

No action required.

## RxCpaMsgRateAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average DSR Application's Message Processing rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all message processing rate samples taken during the collection interval. Used for congestion control by DSR.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxCpaMsgRatePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak DSR Application's Message Processing rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum message processing rate sample taken during the collection interval. Used for congestion control by DSR.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxCpaRequestMsgQueueAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Request Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxCpaRequestMsgQueuePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Request Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxCpaRequestProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of Requests processed by DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be incremented when a Diameter Request is received.

**Measurement Scope:** Server Group



**Recovery:**

No action required.

**RxDmiwfRequestMsgQueuePeak**

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**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

**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

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Description:** The maximum Answer Message Queue utilization (0-100%) taken during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** The maximum Answer Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. 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

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Description:** The average of all Answer Message Queue utilization samples taken during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** The average of all Answer Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**
2. If no additional congestion alarms are asserted, the DSR Application Task may be experiencing a problem preventing it from processing messages from its Answer Message Queue. Examine the Alarm log in **Alarms & Events**.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxDmiwfFullIDRLRequestReject

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Description:** The number of egress Diameter Request messages that were rejected because the DRL's Request Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message discarded because the DRL's Request Queue was full.

**Measurement Scope:** Server Group

**Recovery:**

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is 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

**Measurement Group:** DSR Application Exception

**Measurement Type:** Simple

**Description:** The number of egress Diameter Answer messages that were discarded because the DRL's Answer Queue was full

**Collection Interval:** 5 min

**Peg Condition:** For each Answer message discarded because the All-Connections Event Queue was full

**Measurement Scope:** Server Group

**Recovery:**

This measurement is primarily intended to assist in evaluating the need for additional Message Processor (MP) processing capacity at a Network Element and indicates overall MP congestion is occurring.

- If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
- If the peak and average for an individual MP is significantly different than other MPs in the same Network Element, then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
- If the problem persists, contact the [My Oracle Support \(MOS\)](#) for assistance.

### RxDmiwfMsgRatePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Description:** The peak DSR Application's Ingress Message Rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum DSR Application Ingress Message Rate sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**
2. There may be an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from **Main Menu > Status & Manage > KPIs**. If MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxDmiwfMsgRateAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Description:** The average DSR Application's Ingress Message Rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all DSR Application Ingress Message Rate samples taken during the collection interval

**Measurement Scope:** Server Group

**Recovery:**

1. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**
2. There may be an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from **Main Menu > Status & Manage > KPIs**. If MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxDmiwfRequestProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Description:** The number of Requests processed by a DSR Application during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message successfully de-queued from the DSR Application's Request Message queue

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxDmiwfAnswerProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Description:** The number of Answers processed by a DSR Application during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** For each Answer message successfully de-queued from the DSR Application's Answer Message" queue

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxFabrMsgRateAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average DSR Application's Ingress Message Rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all DSR Application Ingress Message Rate samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify the configuration using **Diameter > Configuration > Application Routing Rules**.

The Application Routing Table may be mis-configured and sending too much traffic to the DSR Application.

2. Use **Main Menu > Status & Manage > KPIs** to monitor the ingress traffic rate of each MP.

The MPs may be unable to handle the network load. MPs are in a congestion state when the ingress message rate to the MP is exceeding its capacity to process the messages.

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

## RxFabrMsgRatePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak DSR Application's Ingress Message Rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum DSR Application Ingress Message Rate sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify the configuration using **Diameter > Configuration > Application Routing Rules**.  
The Application Routing Table may be mis-configured and sending too much traffic to the DSR Application.
2. Use **Main Menu > Status & Manage > KPIs** to monitor the ingress traffic rate of each MP.  
The MPs may be unable to handle the network load. MPs are in a congestion state when the ingress message rate to the MP is exceeding its capacity to process the messages.
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxFabrRequestMsgQueueAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Request Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application status by selecting **Diameter>Maintenance>Applications**. Verify that the Admin State is set as expected.  
The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter>Configuration >Application Routing Rules**.

3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxFabrRequestMsgQueuePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Request Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application status by selecting **Diameter>Maintenance>Applications**. Verify that the Admin State is set as expected.  
The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter>Configuration >Application Routing Rules**.
3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxFabrRequestProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Requests processed by a DSR Application during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message successfully de-queued from the DSR Application's Request Message queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxGlaMsgRateAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average DSR Application's Ingress Message Rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all DSR Application Ingress Message Rate samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter > Configuration > Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage > KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. Contact [My Oracle Support \(MOS\)](#) for further assistance.

## RxGlaMsgRatePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak DSR Application's Ingress Message Rate measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum DSR Application Ingress Message Rate sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter > Configuration > Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage > KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. Contact [My Oracle Support \(MOS\)](#) for further assistance.



## RxGlaRequestMsgQueueAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Request Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter > Configuration > Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage > KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. Contact [My Oracle Support \(MOS\)](#) for further assistance.

## RxGlaRequestMsgQueuePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Request Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Determine if the Application Routing Table is mis-configured and sending too much traffic to the DSR Application. Verify the configuration via the Main Menu: **Diameter > Configuration > Application Routing Rules**
2. Determine if there are an insufficient number of MPs configured to handle the network load. The ingress traffic rate of each MP can be monitored from Main Menu: **Status & Manage > KPIs**. If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
3. Contact [My Oracle Support \(MOS\)](#) for further assistance.

## RxGlaRequestProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Requests processed by a DSR Application during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Request message successfully de-queued from the DSR Application's Request Message queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxPcaRequestProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Requests processed by Policy and Charging DSR Application during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** Each time a Diameter Request message is successfully de-queued from the Policy and Charging DSR Application's Request Message queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxPcaAnswerProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Diameter Answer messages processed by Policy and Charging DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Diameter Answer message is successfully de-queued from the Policy and Charging DSR Application's Request Message queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxPcaMsgRateAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average Policy and Charging DSR Application's Ingress Message Rate measured during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** When the average of all DSR Application Ingress Message Rate samples is taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application message rate by selecting **Diameter > Maintenance > Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter > Status & Manage > KPIs**.  
If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxPcaMsgRatePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak Policy and Charging DSR Application's Ingress Message Rate measured during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** When the maximum of all DSR Application Ingress Message Rate samples is taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application message rate by selecting **Diameter > Maintenance > Applications**. Verify that the message rate is set as expected.

2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter > Status & Manage > KPIs**.  
If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxRbarMsgRateAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average DSR Application's Ingress Message Rate measured during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** When the average of all DSR Application Ingress Message Rate samples is taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application message rate by selecting **Diameter > Maintenance > Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter > Status & Manage > KPIs**.  
If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxRbarMsgRatePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak DSR Application's Ingress Message Rate measured during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** When the maximum DSR Application Ingress Message Rate sample is taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application message rate by selecting **Diameter > Maintenance > Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter > Status & Manage > KPIs**.  
If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxRbarRequestMsgQueueAvg

**Measurement Group:** DSR Application Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average Request Message Queue utilization (0-100%) measured during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** When the average of all Request Message Queue utilization samples is taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application status by selecting **Diameter > Maintenance > Applications**. Verify that the Operational Reason, which indicates congestion level, is set as expected. The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxRbarRequestMsgQueuePeak

**Measurement Group:** DSR Application Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak DSR Application's Request Message Queue utilization (0-100%) measured during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** When the maximum Request Message Queue utilization sample is taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. Display and monitor the DSR Application status by selecting **Diameter > Maintenance > Applications**. Verify that the Operational Reason, which indicates congestion level, is set as expected. The DSR Application's Request Message Queue Utilization is approaching its maximum capacity. This alarm should not normally occur when no other congestion alarms are asserted.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. If no additional congestion alarms are asserted, the DSR Application Task might be experiencing a problem that is preventing it from processing message from its Request Message Queue. Examine the Alarm log in **Alarms & Events**
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxRbarRequestProcessed

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Requests processed by a DSR Application during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** When a Request message is successfully de-queued from the DSR Application's Request Message queue.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxAplTransSuccess

**Measurement Group:** DSR Application Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by DSR Application ID)

**Description:** Number of Request messages received from a DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully receives a Request message from a DSR Application.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## Diameter Egress Transaction measurements

The Diameter Egress Transaction measurement report contains measurements providing information about Diameter peer-to-peer transactions forwarded to upstream peers.

**Table 31: Diameter Egress Transaction Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxAnswerExpectedAll	Number of valid Answer messages received from an upstream peer that were associated with a pending transaction.	5 min
RxAnswerMsgQueueFullDiscard	Number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.	5 min
RxRedirectHostNotRouted	Number of Redirect Host Notifications received for which a Redirected Request was not submitted for rerouting.	5 min
RxRedirectHostRouted	Number of Redirect Host Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.	5 min
RxRedirectRealmNotRouted	Number of Redirect Realm Notifications received for which a Redirected Request was not submitted for rerouting.	5 min
RxRedirectRealmRouted	Number of Redirect Realm Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.	5 min
TxAnswerTimeout	Number of times that an Answer response was not received from a peer before the maximum allowed time PENDING_ANSWER_TIMER.	5 min
TxConnAnswerMsgs	Number of routable Answer messages successfully sent on the connection.	5 min

Measurement Tag	Description	Collection Interval
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

**Measurement Group:** Diameter Egress Transaction, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction is found.

The connection measurement is associated with the connection from which the Answer message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxAnswerMsgQueueFullDiscard

**Measurement Group:** Diameter Egress Transaction, Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Answer message discarded because the Answer Message Queue was full.

The connection measurement is associated with the connection from which the message was received.

**Measurement Scope:** Server Group

**Recovery:**



1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxRedirectHostNotRouted

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

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

**Description:** The number of Redirect Host Notifications received for which a Redirected Request was not submitted for rerouting.

**Collection Interval:** 5 min

**Peg Condition:** When DRL, for any reason, does not submit the Redirected Request message for routing.

The connection measurement is associated with the connection from which the Redirect Notification was received.

**Measurement Scope:** Site

**Recovery:**

No action required.

### RxRedirectHostRouted

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

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

**Description:** The number of Redirect Host Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully queues a Redirected Request message for routing.

The connection measurement is associated with the Connection from which the Redirect Notification was received.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxRedirectRealmNotRouted

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

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

**Description:** The number of Redirect Realm Notifications received for which a Redirected Request was not submitted for rerouting.

**Collection Interval:** 5 min

**Peg Condition:** When DRL, for any reason, does not submit the Redirected Request message for routing.

The connection measurement is associated with the connection from which the Redirect Notification was received.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxRedirectRealmRouted

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

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

**Description:** The number of Redirect Realm Notifications received for which the Redirect-Host AVP has been updated and submitted for rerouting.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully queues a Redirected Request message for routing.

The connection measurement is associated with the connection from which the Redirect Notification was received.

**Measurement Scope:** Site

**Recovery:**

No action required.

## TxAnswerTimeout

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

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

**Description:** The number of times that an Answer response was not received from a peer before the maximum allowed time PENDING-ANSWER-TIMER.

Answer timeouts can be caused by a variety of reasons:

- The peer associated with this connection may be experiencing congestion, causing delays in sending the Answer response.
- IP Network congestion.
- If the peer associated with this connection is a Diameter Relay Agent, then an upstream node from the peer may be experiencing congestion, causing delays in sending the Answer response.

**Collection Interval:** 5 min

**Peg Condition:** When timer PENDING-ANSWER-TIMER expires.

The connection measurement is associated with the connection from which the corresponding Request message was sent.

**Measurement Scope:** Server Group

**Recovery:**

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before a Answer response is received. The user-configurable value is set using the page **Diameter > Configuration > System Options**.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxAnswerTimeoutAllMp

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that an Answer response was not received from a peer before the maximum allowed time defined by the "Pending Answer Timer" value.

**Collection Interval:** 5 min

**Peg Condition:** When timer PENDING-ANSWER-TIMER expires.

The connection measurement is associated with the connection from which the corresponding Request message was sent.

**Note:** This measurement is the DA-MP equivalent to the "per connection" measurement [TxAnswerTimeout](#).

**Measurement Scope:** Site

**Recovery:**

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before a Answer response is received. The user-configurable value is set using the page **Diameter > Configuration > System Options**.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxConnAnswerMsgs

**Measurement Group:** Diameter Egress Transaction, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of routable Answer messages successfully sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter Answer message is sent to the peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxConnectionFailed

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

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

**Description:** The number of times that a pending peer-to-peer transaction was abandoned due to a transport connection failure.

**Collection Interval:** 5 min

**Peg Condition:** When a pending transaction is rerouted due to a transport connection failure.

This connection measurement is associated with the connection to which the corresponding Request message was sent.

**Measurement Scope:** Server Group

**Recovery:**

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

### TxConnRequestMsgs

**Measurement Group:** Diameter Egress Transaction, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of routable Request messages successfully sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter request message is sent to the peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxRequestSuccessAllConn

**Measurement Group:** Diameter Egress Transaction

**Measurement Type:** Simple

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

**Description:** The number of Request messages successfully routed to a peer.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR successfully queues a Request message to the DCL.

The connection measurement is associated with the connection to which the Request message was sent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## Diameter Exception measurements

The Diameter Exception measurement report contains measurements that provide information about exceptions and unexpected messages and events that are specific to the Diameter protocol.

**Table 32: 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
EvConnCeaIdValFail	Number of times the connection was closed due to CEA Realm/Host validation for locally initiated connections.  <b>Note:</b> CER Realm/Host validation failures are tracked via the EvConnCerIdValFail measurement and are NOT included in this measurement.	5 min
EvConnCexTO	Number of times the connection timed out waiting for the peer to send a CER or CEA.	5 min

Measurement Tag	Description	Collection Interval
EvConnDpaTO	Number of times the connection timed out waiting for the peer to send a DPA.	5 min
EvConnNoComnApps	Number of times the connection was closed due to there being no common application IDs existing between the local and peer nodes.	5 min
EvConnPrvFail	Number of times the connection was closed after failing to successfully complete the proving phase.	5 min
EvConnRejected	Number of times the connection was rejected. Reasons include IP address validation failure, the connection already established, and connection Administratively Disabled.	5 min
EvConnRejInsufficientIngressMps	Number of times DA-MP rejected a Diameter connection due to insufficient Ingress MPS on the DA-MP to support the Reserved Ingress MPS configured for the connection.	5 min
EvConnRejMaxConnExceeded	Number of times DA-MP rejected a Diameter connection due to the DA-MP exceeding its maximum number of supported Diameter connections.	5 min
EvConnWdFail	Number of times the Diameter Watchdog algorithm closed the connection due to no traffic received from the peer within $T_w \times 2$ time after a DWR was sent.	5 min
EvConnWdSuspect	Number of times the Diameter Watchdog algorithm declared the connection suspect due to no traffic received from the peer within $T_w$ time after a DWR was sent.	5 min
EvMpCerIdValFail	Number of times the connection was closed due to CER Realm/Host validation for peer initiated connections.	5 min

Measurement Tag	Description	Collection Interval
EvTransLifetimeExceededMp	Number of transaction failures because "Transaction Lifetime" exceeded.	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
RxConnCeaError	Number of CEA error messages received on the connection.	5 min
RxConnFailMalMsg	Number of messages received on the connection which were malformed. Malformed messages cause the connection to be closed.	5 min
RxConnInvalidMsg	Number of messages received on the connection which had a semantic error. Messages with semantic errors are discarded.	5 min
RxConnMpCongestionAnswerRsp	Number of ingress messages that were rejected with an error response because of local congestion.	5 min
RxConnUnexpCex	Number of unexpected CER/CEA messages received on the connection.	5 min
RxConnUnexpDpx	Number of unexpected DPR/DPA messages received on the connection.	5 min
RxConnUnexpDwx	Number of unexpected DWR/DWA messages received on the connection.	5 min
RxMaxMpsAnswerRsp	The number of ingress Diameter messages that were discarded because of the MP Maximum MPS limitation and an Answer response was sent.	5 min
RxMaxMpsRejectMp	The number of ingress Diameter messages that were rejected	5 min

Measurement Tag	Description	Collection Interval
	because of MP Maximum MPS limitation and an Answer response was sent.	
RxMpCongestionDiscardMp	The number of ingress Diameter Request messages received that were discarded or rejected because of local DA-MP CPU congestion.	5 min
RxMpCongestionRejectMp	The number of ingress Diameter messages that were discarded because of Local MP Congestion and an Answer response was sent.	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
RxPduPoolEmptyDiscard	The number of Diameter messages that were discarded because no PDU Buffers were available.	5 min
RxRoutableRejectMsgsMp	The number of ingress Diameter Request messages received that are rejected by MP with Error	5 min



Measurement Tag	Description	Collection Interval
	Answer due to MP Overload Control or Maximum IMR Limitation.	
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
TxAllConnQueueFullAnswerDiscard	The number of egress Diameter Answer messages that were discarded because the All-Connections Event Queue was full and an Answer response was sent.	5 min
TxAllConnQueueFullDiscard	Number of egress Diameter messages that were discarded because the All-Connections Event Queue was full.	5 min
TxConnCeaError	Number of CEA error messages sent on the connection.	5 min
TxConnUnavailDiscard	Number of egress Diameter messages that were discarded by DCL because the egress connection was Unavailable.	5 min
TxReqMsgApplMismatch	Number of times message routing detected application mismatch	5 min
TxReqMsgPerConnPtrMax	Number of times message routing bypassed the connection because the maximum allowed pending transactions was exceeded	5 min
TxRequestEgressLoop	Outgoing message loops detected	5 min

## EvApplIdListInconsistency

Measurement Group: Diameter Exception

**Measurement Type:** Simple

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

**Description:** Number of times that the supported Application IDs received from the peer were inconsistent with another transport connection.

**Collection Interval:** 5 min

**Peg Condition:** If the Application ID list received from the DSR for a peer's transport connection is not identical to the Application ID list for at least one of the transport connections for a peer that has an Operation Status state of Available.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. If no additional congestion alarms are asserted, the DSR may be experiencing a problem preventing it from processing events from its All-Connections Event Queue. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvConnCeaIdValFail

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection was closed due to CEA Realm/Host validation for locally initiated connections.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a CEA message is received on the connection that has an Origin-Host AVP value that does not match the FQDN configured for the peer, or an Origin-Realm AVP value that does not match the realm configured for the peer.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Origin-Host and Origin-Realm AVP values in the CEA sent by the peer.
2. Either change the FQDN/Realm configured for the peer to match this value, or change the peer so that it sends Origin-Host/Origin-Realm AVP values that match the peer FQDN/Realm configuration.

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

## EvConnCexTO

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection timed out waiting for the peer to send a CEx.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a peer initiated a connection and fails to send a CER within Tcex (from the Connection Configuration Set) seconds of the socket connection being established, or when the DSR initiates a connection and the peer fails to send a CEA within Tcex (from the Connection Configuration Set) seconds of the DSR sending a CER.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the peer to determine why it did not send the appropriate CEx message.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvConnDpaTO

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection timed out waiting for the peer to send a DPA.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a peer fails to send a DPA within Tdpx (from the Connection Configuration Set) seconds of the DSR sending a DPR.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the peer to determine why it did not respond to the DPR message that the DSR sent to it.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvConnNoConnApps

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection was closed due to there being no common Application IDs existing between the Local and Peer Nodes.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a CEx message is received on the connection that has

1. No Application IDs specified (when in Relay mode), or
2. No Application IDs in common with those configured for the local node or
3. If any of the Application IDs marked as 'MUST exist in Peer CEx', in the CEx Cfg Set of that connection object, is not present in the CEx message

**Measurement Scope:** Server Group

**Recovery:**

Verify that either the Auth-Application-ID, the Acct-Application-ID, or the Vendor-Specific-Application-ID AVPs are present in the CEx message sent by the peer.

## EvConnPrvFail

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection was closed after failing to successfully complete the proving phase.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a peer fails a proving period.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the peer to determine why it did not respond in a timely fashion to the DWRs sent during the proving period.
2. Consider increasing the Proving Timer in the Connection Configuration Set for the connection to allow more time for the peer to respond to DWRs.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvConnRejected

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the connection was rejected. Reasons include IP address validation failure, the connection already established, and connection administratively disabled.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a connection is rejected for any reason.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Alarm History to determine the specific reason(s) for the connection being rejected.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvConnRejMaxConnExceeded

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times DA-MP rejected a Diameter connection due to the DA-MP exceeding its connection or ingress MPS capacity.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented for each Diameter connection that is rejected by a DA-MP.

**Measurement Scope:** Server Group

**Recovery:**

1. The DA-MP has reached its connection or ingress MPS capacity.
2. If the DA-MP is a member of a IPFE TS, verify that the IPFE is configured to fully monitor the DA-MP's availability status.

When a IPFE fully monitors application servers in a IPFE TS, it will cease from distributing new Diameter connections to any/all application servers that report a "Stasis" availability status.

3. The sum of the Reserved Ingress MPS for the added connection and MP Reserved Ingress MPS has exceeded the MP Maximum Reserved Ingress MPS. The value for Reserved Ingress MPS for the added connection needs to be examined to determine if its value should be decreased.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvConnWdFail

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the Diameter watchdog algorithm closed the connection due to no traffic received from the peer within  $T_w \times 2$  seconds after a DWR was sent.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when no messages were received from the peer within  $T_w \times 2$  seconds of sending a DWR to the peer.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the peer to determine why it is not responding to requests.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvConnWdSuspect

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times the Diameter watchdog algorithm declared the connection suspect due to no traffic received from the peer within Tw seconds after a DWR was sent.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when no Diameter messages are received on the connection for Tw seconds after a DWR was sent to the peer.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the peer to determine why it is not responding to requests.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvMpCerIdValFail

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times the connection was closed due to CER Realm/Host validation for peer initiated connections.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when the value Origin-Host and/or Origin-Realm AVPs sent by the peer in its CER message do not match the values provisioned for the connection.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Alarm History to determine the Origin Host and Realm sent by the peer.
2. Compare these values to those configured in the Peer Node object for this connection. These values must match in order for the peer connection to be validated.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvTransLifetimeExceededMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of transaction failures because "Transaction Lifetime" exceeded.

**Collection Interval:** 5 min

**Peg Condition:** When the DRL was prevented from rerouting a Request message because the "Transaction Lifetime" was exceeded.

**Measurement Scope:** Site

**Recovery:**

No action required.

## EvTransRejectedByExternalNode

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of transactions rejected by an external node with a non-2xxx Result-Code value.

**Collection Interval:** 5 min

**Peg Condition:** When DSR successfully relays an answer response received from an upstream external node to a downstream external node and the answer contains a failure response (i.e. a Result-Code AVP value not in the range of 2000-2099)

**Note:** This measurement is not pegged for answer generated by application.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxAnswerMsgQueueFullDiscard

**Measurement Group:** Diameter Egress Transaction, Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter Answer messages that were discarded because the Answer Message Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Answer message discarded because the Answer Message Queue was full. The connection measurement is associated with the connection from which the message was received.

**Measurement Scope:** Server Group

**Recovery:**

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

2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxAnswerUnexpected

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.

**Collection Interval:** 5 min

**Peg Condition:** When the 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.

### RxAnswerUnexpectedAllMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Answer messages received from an upstream peer that could not be associated with a pending transaction.

**Collection Interval:** 5 min

**Peg Condition:** When DRL receives an answer message event from DCL with a valid Diameter Connection ID for which a pending transaction cannot be found

The connection measurement is associated with the connection from which the Answer message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.



## RxConnCeaError

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of CEA error messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a CEA message with a non-success response code is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Alarm History to determine why the connection is being rejected.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxConnFailMalMsg

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of messages received on the connection which were malformed. Malformed messages cause the connection to be closed.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a message is received on the connection that cannot be decoded.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Alarm History and find Event 22302 - Connection Unavailable: Received malformed message (refer to the *DSR Alarms and KPIs Reference* for details about this event) for this connection.
2. Examine the displayed message bytes for errors. Monitor the connection for invalid Diameter messages.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxConnInvalidMsg

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of messages received on the connection which had a semantic error. Messages with semantic errors are discarded.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a message is received on the connection that cannot be decoded.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Alarm History and find Event 22311 - Invalid Diameter message received (refer to the *DSR Alarms and KPIs Reference* for details about this event) for this connection.
2. Examine the displayed message bytes for errors.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxConnMpCongestionAnswerRsp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of ingress messages that were rejected with an error response because of local DA-MP CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** For each ingress Diameter message that was rejected because of local DA-MP CPU congestion and an Answer response was sent.

The connection measurement is associated with the connection from which the 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. 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 \(MOS\)](#).

## RxConnOversizedMsg

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of messages received on the connection which were oversized (greater than Engineered Message Size and less than or equal to Maximum Message Size).

**Collection Interval:** 5 min

**Peg Condition:** When the ingress message size received on the connection is greater than Engineered Message Size and less than or equal to Maximum Message Size

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxConnUnexpCex

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of unexpected CER/CEA messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a CER/CEA message is received on the connection after the capabilities exchange has been completed. Pegged when a CER is expected from the peer and a CEA received, or vice versa.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Alarm History and find Event 22308 - Received Unexpected CER/CEA (refer to the *DSR Alarms and KPIs Reference* for details about this event) for this connection to determine the reason that the CEx was unexpected.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxConnUnexpDpx

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of unexpected DPR/DPA messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DPx message is received on the connection before the capabilities exchange has been completed, or when a DPA is received without a DPR being sent to it.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the peer to determine why it is sending non-CEX messages before the capabilities exchange is complete, or why it is sending a DPA without receiving a DPR.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxConnUnexpDwx

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of unexpected DWR/DWA messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DWx message is received on the connection before the capabilities exchange has been completed.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the peer to determine why it is sending non-CEx messages before the capabilities exchange is complete.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxDOCDiscardConn

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of ingress messages that were discarded because of local DA-MP danger of CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** For each message discarded on a connection due to DA-MP danger of CPU congestion. The connection measurement is associated with the connection from which the message was received.

**Measurement Scope:** Server Group

**Recovery:**

1. The DA-MP is approaching or exceeding its maximum configured MPS limitation. If this value is not set to the MP's engineered traffic handling capacity, then the maximum MPS capacity allowed may need to be changed.
2. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
3. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs**

page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.

4. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxDOCRejectConn

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of ingress Diameter messages that were rejected with an error response because of local DA-MP danger of CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** For each message discarded on a connection with a DIAMETER (Error) Answer due to DA-MP danger of CPU congestion.

The connection measurement is associated with the connection from which the message was received.

**Measurement Scope:** Server Group

**Recovery:**

1. The DA-MP is approaching or exceeding its maximum configured MPS limitation. If this value is not set to the MP's engineered traffic handling capacity, then the maximum MPS capacity allowed may need to be changed.
2. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
3. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
4. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxDOCRejectMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress messages that were rejected with error answer due to local DA-MP danger of CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** Pegged for each message discarded with a DIAMETER (Error) Answer due to DA-MP danger of CPU congestion.

**Measurement Scope:** Server Group

**Recovery:**

1. The DA-MP is approaching or exceeding its maximum configured MPS limitation. If this value is not set to the MP's engineered traffic handling capacity, then the maximum MPS capacity allowed may need to be changed.
2. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
3. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
4. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxMpCongestionDiscardMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter Request messages received that were discarded or rejected because of local DA-MP CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** For each ingress Diameter Request message discarded because of local DA-MP CPU congestion.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.

2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxMpCongestionRejectMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Description:** The number of ingress messages that were rejected with error answer due to local DA-MP CPU congestion

**Collection Interval:** 5 min

**Peg Condition:** Pegged for each message discarded with a DIAMETER (Error) Answer due to a DA-MP CPU congestion.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxMsgsOCGreenPri0DiscardMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Green ingress Priority 0 messages discarded by the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component

**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

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Yellow ingress Priority 0 messages discarded by the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**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

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. Monitor the DA-MP server status from **Main Menu > Status & Manage > Server Status**.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each DA-MP from **Main Menu > Status & Manage > KPIs**. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. Monitor the ingress traffic rate of each DA-MP from **Main Menu > Status & Manage > KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. Examine the alarm log from **Main Menu > Alarms & Events**.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxMsgsOCYellowPri1DiscardMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Yellow ingress Priority 1 messages discarded by the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 1 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**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 \(MOS\)](#).

## RxMsgsOCGreenPri2DiscardMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Green ingress Priority 2 messages discarded by the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component

**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

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Yellow ingress Priority 2 messages discarded by the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**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 \(MOS\)](#).

## RxPduPoolEmptyDiscard

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Diameter messages that were discarded because no PDU buffers were available.

**Collection Interval:** 5 min

**Peg Condition:** For each Diameter message discarded.

The connection measurement is associated with the connection the message was received from.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or Diameter Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxRoutableRejectMsgsMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages rejected with error answer due to DA-MP Overload Control (DOC and Congestion).

**Collection Interval:** 5 min

**Peg Condition:** Pegged for each Request message that is rejected.

**Measurement Scope:** Server Group

**Recovery:**

1. The DA-MP is approaching or exceeding its maximum configured MPS limitation. If this value is not set to the MP's engineered traffic handling capacity, then the maximum MPS capacity allowed may need to be changed. Contact [My Oracle Support \(MOS\)](#) for assistance.
2. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
3. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
4. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TmConnDegraded

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** Total time (in seconds) during the reporting period that the connection state was in the Degraded state.

**Collection Interval:** 5 min

**Peg Condition:** Pegging started when a peer enters the Degraded state. Pegging stopped when the peer enters the Available or Unavailable state.

A peer may be degraded for short periods of time (< 30 seconds) due to being in a proving period or during a graceful disconnect; degraded conditions lasting longer periods of time are most likely due to local congestion.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement indicates an excessive amount of time spent in the degraded state, examine the Alarm History to determine the cause of the degraded condition.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TmConnEnabledNotAvail

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** Total time (in seconds) during the reporting period that the connection state was administratively enabled and the connection state was not Available.

**Collection Interval:** 5 min

**Peg Condition:** Pegging is started when a peer is enabled or when a peer disconnects. Pegging is stopped when the peer connects and completes capabilities exchange, or when the connection is disabled.

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the Alarm History to determine if the connection is being rejected by either end, and for notification of local congestion.
2. Make sure the peer is running.
3. If the connection is configured as a Responder connection, make sure that the peer is attempting to initiate a connection.
4. If the connection is an Initiator connection, make sure that the peer is listening on the configured port.
5. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxAllConnQueueFullAnswerDiscard

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Description:** The number of egress Diameter Answer messages that were discarded because the All-Connections Event Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Answer message discarded because the All-Connections Event 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.

### TxAllConnQueueFullDiscard

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of egress Diameter messages that were discarded because the All-Connections Event Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each message discarded because the "All-Connections Event Queue" was full

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

### TxConnUnavailDiscard

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of egress Diameter messages that were discarded by DCL because the egress connection was Unavailable.

**Collection Interval:** 5 min

**Peg Condition:** For each egress message discarded because the egress connection was found to be Unavailable.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxDtlsOversizedDiscard**

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of oversized egress messages discarded on the DTLS connection.

**Collection Interval:** 5 min

**Peg Condition:** When the message size to be sent on the DTLS connection is greater than 16K (16384) bytes.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxReqMsgApplMismatch**

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times a selected egress peer was not selected because it does not support the target Application ID in the message header.

**Collection Interval:** 5 min

**Peg Condition:** Each time the DSR bypasses a transport connection during route selection because the Application ID in the Request message does not match one of the Application IDs received from the peer on the transport connection during the Diameter Capabilities Exchange procedure.

The connection measurement is associated with the egress connection to which an Application ID was not supported for routing the message.

**Measurement Scope:** Server Group

**Recovery:**

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

**TxReqMsgPerConnPtrMax**

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times message routing bypassed the connection because the maximum allowed pending transactions was exceeded.

**Collection Interval:** 5 min

**Peg Condition:** Each time the DSR bypasses a transport connection during route selection because the maximum number of pending transactions allowed for the connection was exceeded.

The connection measurement is pegged against the egress connection with the maximum number of pending transactions condition which prevented message routing.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. If no additional congestion alarms are asserted, the DSR may be experiencing a problem preventing it from processing messages from its Request Message Queue. The alarm log should be examined from the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxRequestEgressLoop

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

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

**Description:** The number of times that a selected route associated with an egress peer was not selected because a forwarding loop would occur (i.e., the upstream peer has already processed the Request message as determined by the Route-Record AVPs).

**Collection Interval:** 5 min

**Peg Condition:** Each time the DSR bypasses a peer during route selection because the peer's FQDN matches one of the FQDNs in the message's Route-Record AVPs.

The connection measurement is associated with the first connection assigned to the peer.

**Note:** This failure is associated with the peer, not any particular connection. The measurement should always be pegged against the same peer connection, i.e., the first one assigned to the peer.

**Measurement Scope:** Server Group

**Recovery:**

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



## TxTestMessageDiscard

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of egress messages in test mode that were discarded at normal egress connection.

**Collection Interval:** 5 min

**Peg Condition:** Each time an egress message in test mode is discarded at normal egress connection

**Measurement Scope:** 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 33: Diameter Ingress Transaction Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxAnsFwdFailed	The number of times an ingress Diameter Answer message could not be forwarded to the appropriate DA-MP, because the DA-MP was unavailable or congested.	5 min
RxArtRuleRejection	Number of Request messages from a downstream peer rejected by a Local Node because a application routing rule Action is set to "Send Answer" or "Abandon"	5 min
RxDecodeFailure	Number of Request messages rejected from a downstream peer because the message could not be decoded.	5 min
RxDiscardedMsgsPerConnControlsMp	Total number of ingress Diameter messages, over all connections, that were discarded by this MP. Discard is either due to the connection	5 min

Measurement Tag	Description	Collection Interval
	exceeding its configured maximum capacity, or unavailable shared capacity.	
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
RxDOCDiscardConn	The number of ingress messages that were discarded because of 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 a FQDN in the messages' Route-Record AVPs).	5 min
RxMpCongestionDiscard	Number of ingress Diameter Request messages received on a connection that were discarded because of local MP congestion.	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	5 min

Measurement Tag	Description	Collection Interval
	than those identified by other measurements.	
RxRequestMsgQueueFullDiscard	Number of ingress Diameter Request messages that were discarded because the Request Message Queue was full.	5 min
RxRoutableDiscardedMsgsMp	The number of ingress Diameter Request messages received that are discarded by MP without Error Answer due to MP Overload Control or Maximum IMR Limitation.	5 min
RxTransactionTimeout	Number of Request messages from a downstream peer rejected by a Local Node because maximum message reroutes exceeded.	5 min
TxAllConnQueueFullRequestReject	The number of egress Diameter Request messages that were rejected because the All-Connections Event Queue was full	5 min
TxLongTimeoutPtrListEmpty	Number of ingress Diameter Request messages that were discarded because no Long Timeout PTR Buffers were available.	5 min
TxPerConnQueueFullDiscard	Number of egress messages that were discarded because the "Per Connection Egress Message Queue" was full.	5 min
TxPerConnQueueFullAnswerDiscard	Number of egress Answer messages that were discarded because the Per Connection Egress Message Queue was full.	5 min
TxPerConnQueueFullRequestDiscard	Number of egress Request 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

Measurement Tag	Description	Collection Interval
TxSockFullDiscard	Number of egress Diameter messages that were discarded because the socket was not writable.	5 min

## RxAnsFwdFailed

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times an ingress Diameter Answer message could not be forwarded to the appropriate DA-MP, because the DA-MP was unavailable or congested.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented when a DA-MP receives a Diameter Answer message, identifies the DA-MP that holds the pending transaction, however finds that the DA-MP is unavailable or congested.

**Measurement Scope:** Server Group

**Recovery:**

If this measurement is seen to be incrementing consistently, contact [My Oracle Support \(MOS\)](#).

This measurement should be pegged, only when the DSR process on the destination DA-MP is Unavailable or the DA-MP is rebooting.

## RxArtRuleRejection

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of Request messages from a downstream peer rejected by a local node because an application routing rule Action is set to 'Send Answer' or 'Abandon with No Answer'.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Request message from a downstream peer is rejected by a Local node because an application routing rule Action is set to "Send Answer".

**Note:** The "connection measurement" is associated with the Diameter Connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary

## RxDecodeFailure

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages rejected from a downstream peer because the message could not be decoded.

**Collection Interval:** 5 min

**Peg Condition:** Request message from a downstream peer is rejected by a Local Node because it could not be decoded.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

1. These protocol violations are caused by the originator of the message (identified by the Origin-Host AVP in the message) or the peer that forwarded the message to this node (identified by the peer name) and cannot be fixed using the application.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxDiscardedMsgsPerConnControlsMp

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of ingress Diameter messages, over all connections, that were discarded by this MP. Discard is either due to the connection exceeding its configured maximum capacity, or unavailable shared capacity.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message, received on any peer connection, is discarded due to exceeding the configured maximum ingress MPS.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxDOCDiscardMp

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress messages that were discarded due to local DA-MP danger of CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** Pegged for each message discarded due to DA-MP danger of CPU congestion.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxDOCDiscardConn

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of ingress messages that were discarded because of local DA-MP danger of CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** For each message discarded on a connection due to DA-MP danger of CPU congestion.

The connection measurement is associated with the connection from which the message was received.

**Measurement Scope:** Server Group

**Recovery:**

1. The DA-MP is approaching or exceeding its maximum configured MPS limitation. If this value is not set to the MP's engineered traffic handling capacity, then the maximum MPS capacity allowed may need to be changed.
2. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
3. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.

4. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxMessageLooping

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of Request messages from a downstream peer rejected by a Local Node because message looping was detected (FQDN of the Local Node associated with the ingress transport connection matched a FQDN in the messages' Route-Record AVPs).

**Collection Interval:** 5 min

**Peg Condition:** Request message from a downstream peer is rejected by a Local Node with Result-Code 3005 (DIAMETER\_LOOP\_DETECTED).

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

1. An excessive amount of Request message rerouting may have been triggered by either connection failures or Answer timeouts. The status of connections should be examined from the **Diameter > Maintenance > Connections** page.
2. If no additional congestion alarms are asserted, the routing Answer task may be experiencing a problem preventing it from processing messages from its Answer Message Queue. The alarm log should be examined using the **Alarms & Events** page.
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxMpCongestionDiscard

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of ingress messages that were discarded because of local DA-MP CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** For each ingress Diameter Request message discarded because of local DA-MP CPU congestion.

The connection measurement is associated with the connection from which the 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. 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 \(MOS\)](#).

**RxNoRoutesFound****Measurement Group:** Diameter Ingress Transaction Exception**Measurement Type:** Simple**Measurement Dimension:** Arrayed (by Connection ID)**Description:** Number of Request messages from a downstream peer rejected by a Local Node because no routes were available for routing the message.**Collection Interval:** 5 min**Peg Condition:** Request message from a downstream peer is rejected by a Local Node because no routes were available for routing the message. A No Routes Available condition occurs when:

- A Route List was selected via a Peer Routing Rule or implicit routing but its Operational Status was Unavailable
- Implicit routing was invoked and the peer's Operational Status was not Available and an alternate implicit route was not provisioned for the peer

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group**Recovery:**

1. If the message matched a Peer Routing Rule but none of the peers in the Route List were eligible for routing the message because either their operation state was Unavailable, the Application ID in the Request message did not match an application ID supported by the peer, or the peer had previously processed the message as defined by the Route-Record AVPs in the message:
  - a) Verify that IP network connectivity exists between the MP server and the peers.
  - b) Check the event history logs for additional DIAM events or alarms from this MP server.
  - c) Verify that the peers in the Route List are not under maintenance. 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

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of Request messages from a downstream peer rejected by a Local Node because no Peer Routing Rule was found.

**Collection Interval:** 5 min

**Peg Condition:** Request message from a downstream peer is rejected by a Local Node because no Peer Routing Rules were found in the peer routing table and the message was not addressed to a peer (either Destination-Host AVP was absent or Destination-Host AVP was present but was not a peer's FQDN).

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

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of Request messages from a downstream peer rejected by a Local Node because a Peer Routing Rule action is set to "Send Answer" or "Abandon with No Answer".

**Collection Interval:** 5 min

**Peg Condition:** Request message from a downstream peer rejected by a Local Node because a Peer Routing Rule action is set to "Send Answer" or "Abandon with No Answer".

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxRejectedAll

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of Request messages rejected from a downstream peer by a Local Node (all reasons).

**Collection Interval:** 5 min

**Peg Condition:** When measurement ID [RxRejectedConnCongestion](#), [RxDecodeFailure](#), [RxMessageLooping](#), [RxConnInvalidMsg](#), [RxNoRulesFailure](#), [RxNoRoutesFound](#), [RxTransactionTimeout](#), [RxPrtRuleRejection](#), or [RxRejectedOther](#) is pegged.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRejectedOther

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of Request messages from a downstream peer rejected by a Local Node for any reason other than those identified by measurements [RxDecodeFailure](#), [RxMessageLooping](#), [RxConnInvalidMsg](#), [RxNoRulesFailure](#), [RxNoRoutesFound](#), [RxTransactionTimeout](#), [RxArtRuleRejection](#), or [RxPrtRuleRejection](#).

**Collection Interval:** 5 min

**Peg Condition:** Request message from a downstream peer rejected by a Local Node for any reason other than those identified by measurements [RxDecodeFailure](#), [RxMessageLooping](#), [RxConnInvalidMsg](#), [RxNoRulesFailure](#), [RxNoRoutesFound](#), [RxTransactionTimeout](#), [RxArtRuleRejection](#), or [RxPrtRuleRejection](#).

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRequestMsgQueueFullDiscard

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter Request messages that were discarded because the Request Message Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message discarded because the Request Message Queue was full.

The connection measurement is associated with the connection from which the message was received.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxRoutableDiscardedMsgsMp

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages discarded without error answer due to DA-MP Overload Control (DOC and Congestion).

**Collection Interval:** 5 min

**Peg Condition:** Pegged when Diameter Request message is discarded.

**Measurement Scope:** Server Group

**Recovery:**

1. The DA-MP is approaching or exceeding its maximum configured MPS limitation. If this value is not set to the MP's engineered traffic handling capacity, then the maximum MPS capacity allowed may need to be changed. Contact [My Oracle Support \(MOS\)](#) for assistance.
2. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
3. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
4. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
5. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxTransactionTimeout

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of Request messages from a downstream peer rejected by a Local Node because maximum message reroutes are exceeded.

**Collection Interval:** 5 min

**Peg Condition:** Request message from a downstream peer is rejected by a Local Node because maximum number of message reroutes was exceeded.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

1. If the maximum number of message reroutes is set too low (e.g., zero) then any failure trigger message reroute will fail. The user-configurable value is set using the **Diameter > Configuration > System Options** page.
2. If the user-configurable answer response timer is set too low the timer expires before an Answer response is received. The user-configurable value is set using the **Diameter > Configuration > System Options** page.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TxAllConnQueueFullRequestReject**

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

**Description:** The number of egress Diameter Request messages that were rejected because the All-Connections Event Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message discarded because the All-Connections Event 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.

**TxLongTimeoutPtrListEmpty**

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Single

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter Request messages that were discarded because no Long Timeout PTR Buffers were available.

**Collection Interval:** 5 min

**Peg Condition:** When any DRL thread within the Diameter Process needs to allocate a Long Timeout PTR Buffer from the Long Timeout PTR Buffer Pool and the number of allocated Long Timeout PTRs from a Long Timeout PTR Buffer Pool is less than the maximum configured capacity of Long Timeout PTR Buffers then:

- A Long Timeout PTR Buffer shall be allocated from the Long Timeout PTR Buffer Pool
- The count for the number of allocated Long Timeout PTRs from a Long Timeout PTR Buffer Pool shall be incremented by one.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or Diameter Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxPerConnQueueFullDiscard

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of egress messages that were discarded because the "Per Connection Egress Message Queue" was full.

**Collection Interval:** 5 min

**Peg Condition:** For each message discarded because the "Per Connection Egress Message Queue" was full

**Measurement Scope:** Server Group

**Recovery:**

1. An IP network or Diameter peer problem may exist thus preventing SCTP/TCP from transmitting messages into the network at the same pace that messages are being received from the network.
2. The transport task associated with the connection may be experiencing a problem preventing it from processing events from its Connection Event Message Queue. Examine the alarm log 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. Monitor the MP server status from **Main Menu > Status & Manage > Server Status**.
4. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each MP from **Main Menu > 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. Monitor the ingress traffic rate of each 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
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxPerConnQueueFullAnswerDiscard

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of egress Answer messages that were discarded because the Per Connection Egress Message Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Per Connection Egress Message Queue Answer message discarded.

**Measurement Scope:** Server Group

**Recovery:**

1. An IP network or Diameter peer problem may exist that is preventing SCTP/TCP from transmitting messages into the network at the same pace that messages are being received from the network.
2. The transport task associated with the connection may be experiencing a problem preventing it from processing events from its Connection Event Message Queue. The alarm log should be examined using the **Alarms & Events** page.
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. MP server status can be monitored using the **Status & Manage > Server** page.
4. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored using the **Status & Manage > KPIs** page. 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 using 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.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxPerConnQueueFullRequestDiscard

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of egress Request messages that were discarded because the Per Connection Egress Message Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Per Connection Egress Message Queue Request message discarded.

**Measurement Scope:** Server Group

**Recovery:**

1. An IP network or Diameter peer problem may exist that is preventing SCTP/TCP from transmitting messages into the network at the same pace that messages are being received from the network.

2. The transport task associated with the connection may be experiencing a problem preventing it from processing events from its Connection Event Message Queue. The alarm log should be examined using the **Alarms & Events** page.
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. MP server status can be monitored using the **Status & Manage > Server** page.
4. The misconfiguration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored using the **Status & Manage > KPIs** page. 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 using 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.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxPtrListEmpty

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter Request messages that were discarded because no PTR Buffers were available.

**Collection Interval:** 5 min

**Peg Condition:** When any DRL thread within the Diameter Process needs to allocate a PTR Buffer from the PTR Buffer Pool and the number of allocated PTRs from a PTR Buffer Pool is less than the maximum configured capacity of PTR Buffers then:

- A PTR Buffer shall be allocated from the PTR Buffer Pool
- The count for the number of allocated PTRs from a PTR Buffer Pool shall be incremented by one.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or Diameter Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxRerouteQueueFullReject

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple



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

**Description:** The number of egress Diameter Request messages that were rejected because the Reroute Queue was full.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message rejected because the Reroute Queue was full.

The connection measurement is associated with the connection the Request message was received from.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxSockFullDiscard

**Measurement Group:** Diameter Ingress Transaction Exception

**Measurement Type:** Simple

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

**Description:** The number of egress Diameter messages that were discarded because the socket was not writable.

**Collection Interval:** 5 min

**Peg Condition:** For each egress Diameter message discarded because the socket was not writable.

**Measurement Scope:** Server Group

**Recovery:**

1. An IP network or Diameter peer problem may exist thus preventing SCTP/TCP from transmitting messages into the network at the same pace that messages are being received from the network.
2. The transport task associated with the connection may be experiencing a problem preventing it from processing events from its Connection Event Message Queue. Examine the alarm log 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. Monitor the MP server status from **Main Menu > Status & Manage > Server Status**.
4. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. Monitor the ingress traffic rate of each MP from **Main Menu > 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. Monitor the ingress traffic rate of each 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
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## 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 34: 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	5 min

Measurement Tag	Description	Collection Interval
	a downstream peer (for any reason).	
TxAnswerLocalNode	Answer messages created by Local Node successfully routed to downstream peers (all Result-Code values)	5 min
TxAnswerOther	Answer messages from upstream peers successfully routed to downstream peers - Result-Code value not 1000-5999	5 min

### RxConnRequestMsgs

**Measurement Group:** Diameter Ingress Transaction Performance, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of routable Request messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter request message is received from the peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxAnswer1xxx

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 1xxx.

**Collection Interval:** 5 min

**Peg Condition:** Answer message received from a peer that was successfully sent to the DSR with a Result-Code value in the range of 1000 - 1999.

The connection measurement is associated with the connection to which the message was routed.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxAnswer2xxx**

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 2xxx.

**Collection Interval:** 5 min

**Peg Condition:** Answer message received from a peer that was successfully sent to the DSR with a Result-Code value in the range of 2000 - 2999.

The connection measurement is associated with the connection to which the message was routed.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxAnswer3xxx**

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 3xxx (Protocol Error).

**Collection Interval:** 5 min

**Peg Condition:** Answer message received from a peer that was successfully sent to the DSR with a Result-Code value in the range of 3000 - 3999.

The connection measurement is associated with the connection to which the message was routed.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxAnswer4xxx**

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 4xxx (Transient Failure).

**Collection Interval:** 5 min

**Peg Condition:** Answer message received from a peer that was successfully sent to the DSR with a Result-Code value in the range of 4000 - 4999.

The connection measurement is associated with the connection to which the message was routed.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxAnswer5xxx

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value 5xxx (Permanent Failure).

**Collection Interval:** 5 min

**Peg Condition:** Answer message received from a peer that was successfully sent to the DSR with a Result-Code value in the range of 5000 - 5999.

The connection measurement is associated with the connection to which the message was routed.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxAnswerFailure

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of (expected) Answer responses from a peer and Answer responses created by a Local Node which were not successfully routed to a downstream peer (for any reason).

**Note:** An expected Answer response from a peer is an Answer response for which a pending transaction existed.

**Collection Interval:** 5 min

**Peg Condition:** Any time the DSR fails to queue an Answer response.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxAnswerLocalNode

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of Answer responses from a Local Node that were successfully routed to a downstream peer (all Result-Code values).

**Collection Interval:** 5 min

**Peg Condition:** Any time the DSR successfully creates and queues an Answer response to DCL in response to a Request message received from a downstream peer.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxAnswerOther

**Measurement Group:** Diameter Ingress Transaction Performance

**Measurement Type:** Simple

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

**Description:** The number of Answer responses from peers that were successfully routed to a downstream peer with a Result-Code value not in the range of 1000-5999.

**Collection Interval:** 5 min

**Peg Condition:** Answer message received from a peer which was successfully sent to the DSR with either a Result-Code value not in the range of 1000 - 5999 or without a Result-Code AVP.

The connection measurement is associated with the connection to which the message was routed.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## Diameter Performance measurements

The Diameter Performance measurement report contains measurements that provide performance information that is specific to the Diameter protocol.

Table 35: Diameter Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvConnPrvSuccess	Number of times the connection successfully completed the proving phase.	5 min
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
RoutingMsgs	The number of messages processed by DRL , including Rerouting and Message Copy.	5 min
RxAcceptedRequestsMp	The number of ingress Diameter Request messages that are accepted by MP to be routed after all Overload Controls are applied.	5 min
RxAllowedMsgsPerConnControlsMp	The total number of ingress Diameter messages, over all connections, that were not discarded by MP.	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
RxAnswerMsgsMp	Number of Answer messages received.	5 min
RxConnAnswerMsgs	Number of routable Answer messages received on the connection.	5 min
RxConnCea	Number of CEA messages received on the connection.	5 min

Measurement Tag	Description	Collection Interval
RxConnCer	Number of CER messages received on the connection.	5 min
RxConnDpa	Number of DPA messages received on the connection.	5 min
RxConnDpr	Number of DPR messages received on the connection	5 min
RxConnDwa	Number of DWA messages received on the connection.	5 min
RxConnDwr	Number of DWR messages received on the connection.	5 min
RxConnRequestMsgs	Number of routable Request messages received on the connection.	5 min
RxConnRoutableMsgs	Number of routable messages received on the connection.	5 min
RxMaxMpsAcceptedMp	The number of ingress Diameter messages received that are accepted by Maximum IMR Controls of MP.	5 min
RxMaxMpsAcceptedRequestsMp	The number of ingress Diameter Request messages that are accepted by MP to be routed after Maximum IMR Controls are applied by MP.	5 min
RxMsgSize	Ingress message size statistics.	5 min
RxMsgSizeAvg	Average ingress message size in Diameter payload octets.	5 min
RxMsgSizePeak	Peak ingress message size in Diameter payload octets.	5 min
RxMsgsOCPri0Mp	The number of ingress Priority 0 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri0Mp	The number of Green ingress Priority 0 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCYellowPri0Mp	The number of Yellow ingress Priority 0 messages arriving at the DA-MP Overload Control component.	5 min



Measurement Tag	Description	Collection Interval
RxMsgsOCPri1Mp	The number of ingress Priority 1 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri1Mp	The number of Green ingress Priority 1 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCYellowPri1Mp	The number of Yellow ingress Priority 1 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCPri2Mp	The number of ingress Priority 2 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri2Mp	The number of Green ingress Priority 2 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCYellowPri2Mp	The number of Yellow ingress Priority 2 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCPri3Mp	The number of ingress Priority 3 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCPri0RatePeakMp	The peak rate of ingress Priority 0 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri0RatePeakMp	The peak rate of Green ingress Priority 0 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCYellowPri0RatePeakMp	The peak rate of Yellow ingress Priority 0 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCPri1RatePeakMp	The peak rate of ingress Priority 1 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri1RatePeakMp	The peak rate of Green ingress Priority 1 messages arriving at the	5 min

Measurement Tag	Description	Collection Interval
	DA-MP Overload Control component.	
RxMsgsOCYellowPri1RatePeakMp	The peak rate of Yellow ingress Priority 1 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCPri2RatePeakMp	The peak rate of ingress Priority 2 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCGreenPri2RatePeakMp	The peak rate of Green ingress Priority 2 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCYellowPri2RatePeakMp	The peak rate of Yellow ingress Priority 2 messages arriving at the DA-MP Overload Control component.	5 min
RxMsgsOCPri3RatePeakMp	The peak rate of ingress Priority 3 messages arriving at the DA-MP Overload Control component.	5 min
RxOfferedMsgsMp	Total number of ingress Diameter messages, over all connections, offered to this MP. This includes both routable and non-routable messages.	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
RxRoutableAcceptedMsgsMpmn	The number of ingress Diameter messages received that are accepted by MP for processing after all overload controls are applied.	5 min
RxRoutableMsgsMp	Number of routable messages received.	5 min
TmConnAvail	Total time in seconds that the connection state was AVAILABLE during the measurement period.	5 min

Measurement Tag	Description	Collection Interval
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
TxAnswerMsgsMp	Number of routable Answer messages transmitted.	5 min
TxConnAnswerMsgs	Number of routable Answer messages successfully sent on the connection.	5 min
TxConnCea	Number of CEA messages sent on the connection.	5 min
TxConnCer	Number of CER messages received on the connection.	5 min
TxConnDpa	Number of DPA messages sent on the connection.	5 min
TxConnDpr	Number of DPR messages sent on the connection.	5 min
TxConnDwa	Number of DWA messages sent on the connection.	5 min
TxConnDwr	Number of DWR messages received on the connection.	5 min
TxConnRequestMsgs	Number of routable Request messages successfully sent on the connection.	5 min
TxMsgSize	Average egress message size in Diameter payload octets.	5 min
TxMsgSizeAvg	Average egress message size in Diameter payload octets.	5 min
TxMsgSizePeak	Peak egress message size in Diameter payload octets.	5 min
TxRequestMsgsMp	Number of routable Request messages transmitted.	5 min
TxRequestSuccessAllMp	Number of Request messages successfully routed to a peer.	5 min.

## EvConnPrvSuccess

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of times the connection successfully completed the proving phase.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a proving period is successfully completed.

**Measurement Scope:** Server Group

**Recovery:**

1. If the proving mode in the Connection Configuration Set is set to On Error, and this measurement indicates an excessive number of proving periods being performed, examine measurements [TxConnDpr](#), [RxConnDpa](#), [RxConnDpr](#), and [TxConnDpa](#).
2. Also examine the Alarm History for Events 22303 - Connection Unavailable: Peer closed connection, 22319 - Connection Unavailable: Diameter Watchdog, and 22345 - Connection Priority Level changed. Refer to the *DSR Alarms and KPIs Reference* for details about these events.  
The presence of these measurements/events may indicate that the peer is not responding to DWRs or not handling the DPx exchange on disconnect properly, after which the DSR will require a proving period.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvPerConnPtrQueueAvg

**Measurement Group:** Diameter Performance

**Measurement Type:** Average

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

**Description:** The average length of the PTR queue for a connection during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time a PTR is dequeued or enqueued on the connection's PTR queue, the average queue length is calculated using the COMCOL average measurement type method.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## EvPerConnPtrQueuePeak

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

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

**Description:** The maximum length of the PTR queue for a connection during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time a PTR is dequeued or enqueued on the connection's PTR queue, the maximum queue length is calculated using the COMCOL maximum measurement type method.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### EvRemoteBusy

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Description:** Number of times that a connection's Remote Busy State changed from "Not Busy" to "Busy".

**Collection Interval:** 5 min

**Peg Condition:** Each time that DRL changes the connection's "Remote Busy State" to "Busy".

**Measurement Scope:** Server Group

**Recovery:**

1. Use **Main Menu > Diameter > Configuration > Connections** to examine and modify the "Remote Busy Abatement Timeout" attribute setting for the connection.

If the total duration that the connection is congested is small (as defined by TmRemoteBusy), then the user-configurable "Remote Busy Abatement Timeout" attribute for the connection may be set too small.

2. The ingress message rate to the connection is excessive.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### EvTransSuccessByExternalNode

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of transactions where an external node sends success (2xxx) Answer to Diameter Node.

**Collection Interval:** 5 min

**Peg Condition:** When DSR successfully relays an answer response received from upstream external node to a downstream external node and the answer contains a success response (i.e. a Result-Code AVP value in the range of 2000-2999)

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RoutingMsgs

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages processed by DRL, including Rerouting and Message Copy.

**Collection Interval:** 5 min

**Peg Condition:** This peg should be incremented per any of these conditions.

- Ingress Request processing resulting in the Request being routed upstream (with or without local DSR application processing of the Request)
- Ingress Answer processing resulting in forwarding of Answer downstream (with or without local DSR application processing of the Answer)
- Ingress Request processing resulting in Answer message sent by DSR to originator (with or without local DSR application processing of the Request)
- Ingress Request discarded due to validation error or overload
- Ingress Answer discarded due to validation error
- Initial copy and transmit of a Request to a DAS
- Ingress Answer triggering reroute of the pending Request message (including Answers from DAS for copied Requests)
- 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 Request copy completion or termination

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## RxAcceptedRequestsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress request messages that are accepted by DA-MP for routing.

**Collection Interval:** 5 min

**Peg Condition:** For each message forwarded to DRL for routing

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxAcceptedMsgsPerConnControlsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of ingress Diameter messages, over all connections, that were not discarded by MP

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message, received on any peer connection, is not discarded due to not exceeding the configured maximum ingress MPS.

**Measurement Scope** Server Group

**Recovery:**

No action required.

## RxAnswerExpectedAll

**Measurement Group:** Diameter Egress Transaction, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction is found.

The connection measurement is associated with the connection from which the Answer message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxAnswerExpectedAllMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of valid Answer messages received from an upstream peer that were associated with a pending transaction.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction is found.

The connection measurement is associated with the connection from which the Answer message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxAnswerExpectedRoutedMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of valid Answer messages received from an upstream peer that were successfully routed to a downstream peer.

**Collection Interval:** 5 min

**Peg Condition:**

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxAnswerMsgsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Answer messages received.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is received from the peer on the connection. This measurement is pegged for all messages accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnAnswerMsgs

**Measurement Group:** Diameter Performance



**Measurement Type:** Simple

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

**Description:** The number of routable Answer messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter answer message is received from the peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnCea

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of CEA messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a CEA message is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnCer

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of CER messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a CER message is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnDpa

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DPA messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DPA message is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnDpr

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DPR messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DPR message is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnDwa

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DWA messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DWA message is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnDwr

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DWR messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DWR message is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnRequestMsgs

**Measurement Group:** Diameter Ingress Transaction Performance, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of routable Request messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter request message is received from the peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxConnRoutableMsgs

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of routable messages received on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a message with the Proxy bit set is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxDiam2DiamTransactionsCount

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of Diameter to Diameter transactions

**Collection Interval:** 5 min

**Peg Condition:** When an answer message is received from an upstream peer or an answer message is generated by DRL to downstream peer for which pending transaction record has been allocated previously

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxMaxMpsAcceptedMp

**Measurement Group:** Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter messages received that are accepted by Maximum IMR Controls of MP.

**Collection Interval:** 5 min

**Peg Condition:** Pegged for each message not discarded or rejected with "Discard Message" or "Drop Message & Send Response".

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxMaxMpsAcceptedRequestsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Diameter Request messages that are accepted by MP to be routed after Maximum IMR Controls are applied by MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Diameter Request message is not discarded or rejected

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxMsgSize

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Ingress message size statistics.

**Note:** Each bucket in the array contains the number of PDUs with Diameter payload octets that 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 4095 octets
- [8] = 4096 or more octets

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is received from the peer on the connection. This measurement is pegged for all messages accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxMsgSizeAvg

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The average ingress message size in Diameter payload octets.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is received from the peer on the connection. This measurement is pegged for all messages accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxMsgSizePeak

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The peak ingress message size in Diameter payload octets.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is received from the peer on the connection. This measurement is pegged for all messages accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement exceeds the configured maximum Diameter message size, examine the [RxConnFailMalformMsg](#) measurement to determine how many messages were discarded because of this condition.
2. Examine the Alarm History and find Event 22302 - Connection Unavailable: Received malformed message (refer to the *DSR Alarms and KPIs Reference* for details about this event) for this connection.
3. Examine the displayed message bytes for errors and monitor the connection for invalid Diameter messages.
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxMsgsOCPri0Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Priority 0 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

## RxMsgsOCGreenPri0Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Green ingress Priority 0 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCYellowPri0Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Yellow ingress Priority 0 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCPri1Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Priority 1 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 1 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCGreenPri1Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Green ingress Priority 1 messages arriving at 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

**Recovery:**

No action required

### RxMsgsOCYellowPri1Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Yellow ingress Priority 1 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 1 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCPri2Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Priority 2 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCGreenPri2Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single



**Description:** The number of Green ingress Priority 2 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCYellowPri2Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Yellow ingress Priority 2 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCPri3Mp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ingress Priority 3 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 3 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCPri0RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of ingress Priority 0 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCGreenPri0RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of Green ingress Priority 0 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCYellowPri0RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of Yellow ingress Priority 0 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 0 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCPri1RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of ingress Priority 1 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 1 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCGreenPri1RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of Green ingress Priority 1 messages arriving at 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

**Recovery:**

No action required

### RxMsgsOCYellowPri1RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of Yellow ingress Priority 1 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 1 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCPri2RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of ingress Priority 2 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCGreenPri2RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of Green ingress Priority 2 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message marked "Green" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCYellowPri2RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of Yellow ingress Priority 2 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 2 Diameter Request message marked "Yellow" arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxMsgsOCPri3RatePeakMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak rate of ingress Priority 3 messages arriving at the DA-MP Overload Control component.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Priority 3 Diameter Request message arrives at the DA-MP Overload Control component

**Recovery:**

No action required

### RxOfferedMsgsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of ingress Diameter messages, over all connections, offered to this MP. This includes both routable and non-routable messages.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is received on any peer connection.

**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 DSR for a transaction and the total number of times that the corresponding Request message has been forwarded to a peer equals "1".

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxRequestNoErrorsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of transactions successfully processed on one routing attempt.

**Collection Interval:** 5 min

**Peg Condition:** When an Answer response from a peer is successfully queued to the DSR for a transaction and the total number of times that the corresponding Request message has been forwarded to a peer equals "1".

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxRoutableAcceptedMsgsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages accepted and sent to DRL for processing.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when Diameter message is sent to DRL for routing.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**RxRoutableMsgsMp**

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of routable messages received.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message, with the Proxy bit set, is received from the peer. This measurement is pegged for all messages accepted for processing, as well as those rejected due to local congestion, MPS limitation, etc.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TmConnAvail**

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** Total time in seconds that the connection state was available during the measurement period.

**Collection Interval:** 5 min

**Peg Condition:** Pegging started when the connection state is Available. Pegging stopped when the connection state is Unavailable or Degraded.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement varies significantly from the total time in the collection period, examine the Alarm History to determine the reason(s) that the connection was Unavailable or Degraded.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**TmHoldTimeDownstreamMp**

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The time (in milliseconds) from when a pending transaction record is allocated by DRL and until DRL stops processing the transaction and deallocates the PTR.

**Collection Interval:** 5 min

**Peg Condition:**

- The time interval for each transaction starts when DRL allocates and stores PTR for an ingress Request message from a downstream peer
- The time interval for each transaction when DRL stops processing and the transaction deallocates the PTR and sends an answer response to DCL

This includes Answer messages received from an upstream peers and those generated by DRL.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TmRemoteBusy

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Description:** Total time (in milliseconds) that a connection's "Remote Busy State" was "Busy".

**Collection Interval:** 5 min

**Peg Condition:** Each time that DRL changes the connection's "Remote Busy State" to "Busy". Each time interval stops when DRL changes the connection's "Remote Busy State" to "Not Busy"

**Measurement Scope:** Server Group

**Recovery:**

1. The ingress message rate to the connection is excessive.

Under normal circumstance, 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:

- Measurement-ID 10100 - 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

**Measurement Group:** Diameter Performance

**Measurement Type:** Average

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

**Description:** Average time (in milliseconds) from when routing receives a Request message from a downstream peer to the time that an Answer response is sent to that downstream peer.

**Collection Interval:** 5 min

**Peg Condition:** Time interval for each transaction starts when the DSR successfully decodes an ingress Request message from a downstream peer. Time interval for each transaction stops when the DSR attempts to send an Answer response. This includes Answer messages received from upstream peers and those generated by the DSR.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

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

**Measurement Group:** Diameter Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average time (in milliseconds) from when routing receives a Request message from a downstream peer to the time that an Answer response is sent to that downstream peer.

**Collection Interval:** 5 min

**Peg Condition:** Time interval for each transaction starts when the DSR successfully decodes an ingress Request message from a downstream peer. Time interval for each transaction stops when the DSR attempts to send an Answer response. This includes Answer messages received from upstream peers and those generated by the DSR.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TmResponseTimeUpstream

**Measurement Group:** Diameter Performance

**Measurement Type:** Average

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

**Description:** Average time (in milliseconds) from when routing forwards a Request message to an upstream peer to the time that an Answer response is received.

**Collection Interval:** 5 min

**Peg Condition:** Time interval for each transaction starts when the DSR successfully queues a Request message. Time interval for each transaction stops when the DSR receives an Answer response for the pending transaction associated with the forwarded Request message.

The connection measurement is associated with the connection the Request message is sent to.

**Note:** This measurement excludes transactions which are aborted due to a failure (E.g., timer PENDING-ANSWER-TIMER or PENDING-TRANSACTION-TIMER expiration or transport connection failure).

**Measurement Scope:** Server Group

**Recovery:**

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

### TxAnswerMsgsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of routable Answer messages transmitted.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter Answer message is sent to the peer on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxConnAnswerMsgs

**Measurement Group:** Diameter Egress Transaction, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of routable Answer messages successfully sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter Answer message is sent to the peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxConnCea

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of CEA messages sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a CEA message is sent on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxConnCer

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of CER messages sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** When a CER message is sent to the peer on the connection. This measurement is pegged for CER messages indicating success as well as those indicating an error. A separate measurement (TxConnCerErr) is also pegged if the CER indicates an error.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxConnDpa

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DPA messages sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DPA message is sent on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxConnDpr

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DPR messages sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DPR message is sent on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxConnDwa

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DWA messages sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DWA message is sent on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## **TxConnDwr**

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of DWR messages sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a DWR message is received on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## **TxConnRequestMsgs**

**Measurement Group:** Diameter Egress Transaction, Diameter Performance

**Measurement Type:** Simple

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

**Description:** The number of routable Request messages successfully sent on the connection.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter request message is sent to the peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## **TxMsgSize**

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Egress message size statistics.

**Note:** Each bucket in the array contains the number of PDUs with Diameter payload octets that 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 4095 octets
- [8] = 4096 or more octets

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is sent to the peer on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxMsgSizeAvg

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The average egress message size in Diameter payload octets.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter message is sent to the peer on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxMsgSizePeak

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The peak egress message size in Diameter payload octets.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when the size of the Diameter message sent to the peer is larger than any other message sent to the peer during the reporting interval.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxRequestMsgsMp

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of routable Request messages transmitted.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a Diameter Request message is sent to the peer on the connection.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxRequestSuccessAllMP

**Measurement Group:** Diameter Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Request messages successfully routed to a peer.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR successfully queues a Request message.

The connection measurement is associated with the connection to which the Request message was sent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## Diameter Rerouting measurements

The Diameter Rerouting measurement report is a set of measurements which allows the user to evaluate the amount of message rerouting attempts which are occurring, the reasons for why message rerouting is occurring, and the success rate of message rerouting attempts.

Table 36: 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

**Measurement Group:** Diameter Rerouting

**Measurement Type:** Simple

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

**Description:** The number of valid Answer messages received from an upstream peer that were associated with a pending rerouted transaction.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR receives an Answer message event with a valid transport connection ID for which a pending transaction associated with a rerouted message is found.

The connection measurement is associated with the connection from which the Answer message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.



## RxRerouteAnswerRspMp

**Measurement Group:** Diameter Rerouting

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of valid Answer messages received from an upstream peer that were associated with a pending rerouted transaction.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR receives an Answer message event with a valid Transport Connection ID for which a pending transaction associated with a rerouted message is found.

The connection measurement is associated with the connection from which the Answer message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxRerouteAnswerResponse

**Measurement Group:** Diameter Rerouting

**Measurement Type:** Simple

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

**Description:** The number of message rerouting attempts triggered by the receipt of an Answer response Result-Code value that is a candidate for message rerouting.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR receives an Answer response with a Result-Code value that is a candidate for message rerouting.

The connection measurement is associated with the upstream connection from which the Answer response was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxRerouteAnswerTimeout

**Measurement Group:** Diameter Rerouting

**Measurement Type:** Simple

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

**Description:** The number of message rerouting attempts triggered by a timeout (PENDING-ANSWER-TIMER) on the Answer response.

**Collection Interval:** 5 min

**Peg Condition:** When timer PENDING-ANSWER-TIMER expires and the DSR attempts to reroute a Request message.

**Measurement Scope:** Server Group

**Recovery:**

1. If the user-configurable answer response timer is set too low it can cause the timer to expire before a Answer response is received. The user-configurable value is set from the **Diameter > Configuration > System Options** page.
2. 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:** Server Group

**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

**Measurement Group:** Diameter Rerouting

**Measurement Type:** Simple

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

**Description:** The number of message rerouting attempts triggered by a connection failure.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message rerouting attempt invoked by the receipt of a valid Connection Down event notification from the DSR.

**Measurement Scope:** Server Group

**Recovery:**

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

## TxRerouteSuccessSent

**Measurement Group:** Diameter Rerouting

**Measurement Type:** Simple

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

**Description:** The number of message rerouting attempts that were successfully rerouted.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR successfully reroutes a Request message.

The connection measurement is associated with the upstream connection from which rerouting was triggered.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## DM-IWF Exception measurements

The DM-IWF Exception measurement report contains measurements providing information about transaction processing exceptions that are specific to the MAP-Diameter IWF Application running on a DA-MP.

Measurement Tag	Description	Collection Interval
TxMtoDRoutingFail	Number of MAP-to-Diameter transactions which could not be routed to the Diameter network due to a failure.	5 min
TxDtoMRoutingFail	Number of Diameter-to-MAP transactions which could not be routed to a SS7-MP due to a failure.	5 min

Measurement Tag	Description	Collection Interval
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

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of MAP-to-Diameter transactions which could not be routed to the Diameter network due to a failure.

**Collection Interval:** 5 min

**Peg Condition:**

- Whenever DM-IWF is unable to successfully forward a Request message received from a SS7-MP due to a failure.
- Whenever the Request message is not routed to a Diameter Peer Node due to a routing error (either DRL or another DSR Application initiates an Answer response).
- Whenever DM-IWF receives an Answer response from DRL and the Application-Data stack event parameter "Message Source ID" is set to "DRL" or "APP".

**Recovery:**

1. Examine the Admin State of the DM-IWF DSR application. Verify that the DM-IWF DSR application is Enabled via the **Diameter > Maintenance > Applications** screen.
2. If the DM-IWF DSR application is enabled, this measurement is pegged when either DM-IWF internal resources are exhausted or DSR's internal request processing queue is highly congested. Examine the following additional information to determine which resources are exhausted and/or whether the DSR internal queue is congested:
  - Alarms and Events from the **Alarms & Events** screen (Alarm 33005 - DM-IWF PTR Pool Utilization. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm)
  - Measurement [EvDmiwfPtrPoolExceeded](#)
  - Measurement [EvDmiwfTxFwdFail](#)
3. Evaluate the cause of resource exhaustion or internal queue congestion and take corrective action. Examine the following additional information to assist with determination of the cause of resource exhaustion:
  - Alarms and Events from the **Alarms & Events** screen
  - The rate of messages being processed by DM-IWF from the **Status & Manage > KPIs** page
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxDmiwfDtoMRoutingFail

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Diameter-to-MAP transactions which could not be routed to a SS7-MP.

**Collection Interval:** 5 min

**Peg Condition:** Whenever DM-IWF is unable to successfully forward a Request message received from DRL to a SS7-MP due to a failure.

**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

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Diameter-to-MAP transaction failures due to time-out on a DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each DM-IWF abandons a Diameter-to-MAP transaction due to a DM-IWF Pending Answer Timer expiration.

**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

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Arrayed (by Transaction Direction)

**Measurement Type:** Simple

**Description:** Number of transactions rejected - no PTRs

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF fails to allocate a PTR for either a Diameter-to-MAP or MAP-to-Diameter transaction.

**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

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Unexpected Answer messages received from SS7-MPs

**Collection Interval:** 5 min

**Peg Condition:** Each time an Answer message received from an MD-IWF which was discarded because the pending transaction associated with the message could not be found.

**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

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Diameter-to-MAP Request messages that could not be forwarded to MD-IWF Routed Service due to service congestion.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF fails to forward a Request to MD-IWF(SS7-MP) because the message priority of the Request message was less than the MD-IWF Routed Service Congestion Level.

**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

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Diameter-to-MAP Request messages forwarded to MAP Routed Service that received error notification.

**Collection Interval:** 5 min

**Peg Condition:** For each Request forwarded to MD-IWF that received a ComAgent Error response

**Recovery:**

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

**EvMdIwfConnExhausted**

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Arrayed (by Message Type)

**Measurement Type:** Simple

**Description:** Number of Diameter messages that could not be forwarded to MD-IWF (SS7-MP) due to failure to enqueue message to ComAgent.

**Collection Interval:** 5 min

**Peg Condition:** For each Request forwarded to MD-IWF that received a ComAgent Error response

**Recovery:**

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

**RxDiscOnError**

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Arrayed (by Error Condition)

**Measurement Type:** Simple

**Description:** The number of Diameter messages that were discarded on error for the error conditions:

- 0: Encode decode error, D-to-M Request
- 1: Encode decode error, D-to-M Answer
- 2: Encode decode error, M-to-D Request
- 3: Encode decode error, M-to-D Answer

**Collection Interval:** 5 min

**Peg Condition:** When a Diameter message is discarded on error

**Recovery:**

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

**EvDmIwfTxFwdFail**

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Arrayed (by Message Type)

**Measurement Type:** Simple

**Description:** Number of Diameter messages that could not be forwarded by DM-IWF to DRL due to DRL queue exhaustion

**Collection Interval:** 5 min



**Peg Condition:** Any time DM-IWF fails to enqueue a Diameter message to DRL's Request or Answer Task

**Recovery:**

**Note:** This alarm should not occur unless the MP is experiencing local congestion as indicated by Alarms 22000 - Local MP Congestion, 22201 - Ingress Message Rate, 22204 - Request Message Queue Utilization, and 22205 - Answer Message Queue Utilization. Refer to the *DSR Alarms and KPIs Reference* for details about these alarms.

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

## EvDmiwfMsgSizeExceeded

**Measurement Group:** DM-IWF Exception

**Measurement Dimension:** Arrayed (by Diameter Message Type - Request/ Answer

**Measurement Type:** Simple

**Description:** Number of Diameter messages received from DRL that got rejected because the Diameter message size exceeded maximum "Diameter Max Message Size"

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF fails to forward a Diameter message to SS7-MP because its size exceeds the supported maximum

**Recovery:**

Occurrence of this event indicates that diameter message received has size that exceeds maximum diameter message size supported by MAP-Diameter Interworking function and therefore be handled as "Internal Processing Error". Source of these requests can be tracked using "Origin Host", "Application Id" and "Command Code".

## RxDmiwfTransactionsRejected

**Measurement Group:** DM-IWF Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of interworking attempts that failed due to action initiated by DM-IWF (not due to far end).

**Collection Interval:** 5 min

**Peg Condition:** This measurement is pegged each time an interworking attempt by DM-IWF fails due to an action initiated by DM-IWF as send answer or discard request. This measurement does not include failures that are due to an error response received from the far end.

**Measurement Scope:** Site

**Recovery:**

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
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

Measurement Tag	Description	Collection Interval
TxDmiwfAnswerMessageIwf	Number of Answer messages to an SS7-MP	5 min

## RxDmiwfDtoMTransCnt

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Diameter-to-MAP transaction messages processed.

**Collection Interval:** 5 min

**Peg Condition:**

- When DM-IWF processes a Request message received from DRL.
- When DM-IWF processes an Answer message received from an MD-IWF.

**Note:** Two messages are processed for each Diameter-to-MAP transaction: the Request received from DRL (e.g., CLR) and the Answer response received from a SS7-MP and returned to the Diameter network (e.g., CLA).

**Note:** This measurement serves as baseline for calculating measurements [RxDmiwfDtoMTransRateAvg](#) and [RxDmiwfDtoMTransRatePeak](#), as well as KPI Diameter-to-MAP Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details on this KPI).

**Recovery:**

No action required.

## RxDmiwfDtoMTransRateAvg

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Avg

**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.

**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 Dimension:** Single

**Measurement Type:** Max

**Description:** Peak number of Diameter-to-MAP transaction messages processed per second.

**Note:** Two messages are processed for each Diameter-to-MAP transaction: the Request received from DRL (e.g., CLR) and the Answer response received from a SS7-MP and returned to the Diameter network (e.g. CLA).

**Collection Interval:** 5 min

**Peg Condition:** Each time measurement [RxDmiwfDtoMTransCnt](#) is sampled.

**Recovery:**

No action required.

## RxDmiwfMtoDTransCnt

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of MAP-to-Diameter transaction messages processed.

**Collection Interval:** 5 min

**Peg Condition:**

- When DM-IWF processes a Request message received from an MD-IWF.
- When DM-IWF processes an Answer message received from DRL.

**Note:** Two messages are processed for each MAP-to-Diameter transaction: the Request received from a SS7-MP (e.g., CLR) and the Answer response received from DRL and returned to the SS7-MP (e.g., CLA).

**Recovery:**

No action required.

## RxDmiwfMtoDTransRateAvg

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Avg

**Description:** Average number of MAP-to-Diameter transaction messages processed per second.

**Note:** Two messages are processed for each MAP-to-Diameter transaction: the Request received from a SS7-MP (e.g., CLR) and the Answer response received from DRL and returned to the SS7-MP (e.g., CLA).

**Collection Interval:** 5 min

**Peg Condition:** Each time measurement *RxDmiwfMtoDTransCnt* is sampled.

**Recovery:**

No action required.

## RxDmiwfMtoDTransRatePeak

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** Peak number of MAP-to-Diameter transaction messages processed per second.

**Note:** Two messages are processed for each MAP-to-Diameter transaction: the Request received from a SS7-MP (e.g., CLR) and the Answer response received from DRL and returned to the SS7-MP (e.g., CLA).

**Collection Interval:** 5 min

**Peg Condition:** Each time measurement *RxDmiwfMtoDTransCnt* is sampled.

**Recovery:**

No action required.

## RxDmiwfTransactionRspQueuePeak

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** The peak Transaction Response Queue utilization (0-100%) measured during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Transaction Response Queue utilization sample taken during the collection interval.

**Recovery:**

No action required.

**RxDmiwfTransactionRspQueueAvg**

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Avg

**Description:** The average Transaction Response Queue utilization (0-100%) measured during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Transaction Response Queue utilization samples taken during the collection interval.

**Recovery:**

No action required.

**EvDmiwfPtrPoolPeak**

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** The peak DM-IWF PTR Pool utilization (0-100%) measured during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.

**Collection Interval:** 5 min

**Peg Condition:** The maximum DM-IWF PTR Pool utilization sample taken during the collection interval

**Recovery:**

No action required.

**EvDmiwfPtrPoolAvg**

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Avg

**Description:** The DM-IWF PTR Buffer Pool Average Utilization

**Collection Interval:** 5 min

**Peg Condition:** The average DM-IWF PTR Pool utilization sample taken during the collection interval. Values above 100% can be seen briefly during high traffic load conditions.

**Recovery:**

No action required.

## RxDmiwfRequestMessage

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Arrayed (by Command Code)

**Measurement Type:** Simple

**Description:** Number of Request messages with Command Code "X" received from DRL.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF processes a Request message received from DRL.

**Recovery:**

No action required.

## RxDmiwfAnswerMessage

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Arrayed (by Command Code)

**Measurement Type:** Simple

**Description:** Number of Answer messages with Command Code "X" received from DRL.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF processes an Answer message received from DRL.

**Recovery:**

No action required.

## TxDmiwfRequestMessage

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Arrayed (by Command Code ID)

**Measurement Type:** Simple

**Description:** Number of Request messages with Command Code "X" received from DRL.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF successfully enqueues a Request message to DRL's Request Queue, which includes Request messages forwarded from MD-IWFs and Request messages forwarded back to DRL for "Unavailability Action" handling.

**Recovery:**

No action required.

### **TxDmiwfAnswerMessage**

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Arrayed (by Command Code)

**Measurement Type:** Simple

**Description:** Number of Answer messages with Command Code "X" sent to from DRL.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF successfully enqueues an Answer message to DRL's Answer Queue.

**Recovery:**

No action required.

### **RxDmiwfRequestMessageIwf**

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Request messages processed from an SS7-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF processes a request message received from an MD-IWF (SS7-MP).

**Recovery:**

No action required.

### **RxDmiwfAnswerMessageIwf**

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Answer messages processed by DM-IWF that were received from an SS7-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF processes an Answer message received from an MD-IWF (SS7-MP).

**Recovery:**

No action required.

### **TxDmiwfRequestMessageIwf**

**Measurement Group:** DM-IWF Performance



**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Request messages sent to an SS7-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF sends a Request message to an MD-IWF (SS7-MP).

**Recovery:**

No action required.

### **TxDmiwfAnswerMessageIwf**

**Measurement Group:** DM-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of Answer messages sent to an SS7-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time DM-IWF sends a Request message to an MD-IWF (SS7-MP).

**Recovery:**

No action required.

## **Egress Throttle Group Performance measurements**

The Diameter Egress Throttle Group Performance measurement report contains measurements providing information related to a specific ETG.

**Table 37: 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

Measurement Tag	Description	Collection Interval
EvEtgRateDiscardPri0	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited	5 min
EvEtgRateDiscardPri1	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited	5 min
EvEtgRateDiscardPri2	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited	5 min
EvEtgPendingTransPeak	Peak pending transactions to members of this ETG during the collection interval	5 min
EvEtgPendingTransAvg	Average Pending transactions to this ETG during the collection interval	5 min
EvEtgPendingTransOnset	Number of times an ETG Pending Transaction Limiting Congestion Level was advanced	5 min
EvEtgPendingTransDiscardPri0	Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited	5 min
EvEtgPendingTransDiscardPri1	Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited	5 min
EvEtgPendingTransDiscardPri2	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited	5 min

## TxEtgMsgsLocal

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of messages (Request or Answer) send on a Connection or a Peer which is part of ETG .

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully queues a message (Request (including Reroutes and MessageCopy) or Answer) to DCL for transmission to Connection or a Peer which is part of ETG. This peg is incremented even if ETG Rate Limiting function is Disabled. This peg is incremented only for "Routable" messages i.e messages terminated in DCL layer (eg CEX, DWX) are not counted.

**Measurement Scope:** Site

**Recovery:**

No action required

### **TxEtgMsgRatePeak**

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Peak Aggregated ETG Message Rate calculation made during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** An ETG Message Rate calculation  $A_t$  is periodically calculated. If the new  $A_t$  exceeds any previous  $A_{t-k}$  value for the collection interval, then this measurement will be updated with the new  $A_t$  value.

**Measurement Scope:** Site

**Recovery:**

No action required

### **TxEtgMsgRateAvg**

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Avg

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Average ETG Message Rate calculation made during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** Each time an ETG Message Rate calculation  $A_t$  is calculated.

**Measurement Scope:** Site

**Recovery:**

No action required

### **EvEtgRateCongestionOnset**

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of times an ETG-RCL was advanced.

**Collection Interval:** 5 min

**Peg Condition:** Each time the EMR Congestion Level is advanced

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtgRateDiscardPri0

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETG Rate Limited

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.

6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtgRateDiscardPri1

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETG Rate Limited

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtgRateDiscardPri2

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Rate Limited.

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETG Rate Limited

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EMR" for the ETG is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETG if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtgPendingTransPeak

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Peak pending transactions to members of this ETG during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time a new  $P_t$  value exceeds any previous  $P_{t-k}$  value.

**Measurement Scope:** Site

**Recovery:**

No action required

## EvEtgPendingTransAvg

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Avg

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Average pending transactions to members of this ETG during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time an ETG Pending Request  $P_t$  value is calculated.

**Measurement Scope:** Site

**Recovery:**

No action required

## EvEtgPendingTransCongestionOnset

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of times an ETG-PCL was advanced.

**Collection Interval:** 5 min

**Peg Condition:** Each time the ETG Window Congestion Level is advanced

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtgPendingTransDiscardPri0

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETG Pending Transaction Limited

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

**EvEtgPendingTransDiscardPri1**

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETG Pending Transaction Limited

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).



## EvEtgPendingTransDiscardPri2

**Measurement Group:** Egress Throttle Group Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETG ID)

**Description:** Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETG Pending Transaction Limited

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETG Pending Transaction Limited

**Measurement Scope:** Site

**Recovery:**

1. Verify that the "Maximum EPT" for the ETG is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETG is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETG) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETG than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETG is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETG.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, 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 38: 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

Measurement Tag	Description	Collection Interval
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
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
EvEtlPendingTransCongestionOnset	Number of times an ETL-PCL was advanced.	5 min
EvEtlPendingTransDiscardPri0	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
EvEtlPendingTransDiscardPri1	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
EvEtlPendingTransDiscardPri2	Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited.	5 min

## TxEtlMsgRatePeak

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Peak Aggregated ETL Request Message Rate calculation made during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** An ETL Message Rate calculation  $A_t$  is periodically calculated. If the new  $A_t$  exceeds any previous  $A_{t-k}$  value for the collection interval, then this measurement will be updated with the new  $A_t$  value.

This measurement is pegged regardless of whether the ETL's ETG is scoped to ETL or ETG level.

**Measurement Scope:** Site

**Recovery:**

No action required

### TxEtlMsgRateAvg

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Avg

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Average ETL Request Message Rate calculation made during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** Each time an ETL Message Rate calculation  $A_t$  is calculated.

**Measurement Scope:** Network

**Recovery:**

No action required

### EvEtlRateCongestionOnset

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of times an ETL-RCL was advanced.

**Collection Interval:** 5 min

**Peg Condition:** Each time the EMR Congestion Level is advanced

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.

6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtlRateDiscardPri0

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETL Rate Limited

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtlRateDiscardPri1

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETL Rate Limited

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.
5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtlRateDiscardPri2

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Rate Limited.

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETL Rate Limited

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EMR" for the ETL is set sufficiently high.
2. Adjust the EMR onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Adjust the "Rate Convergence Time" parameter for the ETL if necessary. Increasing the "Rate Convergence Time" value allows the user to control the sensitivity of the request traffic bursts to ETG rate.
4. Verify the "EMR Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EMR throttling too rapidly.

5. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
6. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtlPendingTransPeak

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Peak pending transactions to members of this ETL during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** An ETL Pending Request calculation  $P_t$  is periodically calculated. If the new  $P_t$  value exceeds any previous  $P_{t-k}$  value for the collection interval, then this measurement will be updated with the new  $P_t$  value.

This measurement is pegged regardless of whether the ETL's ETG is scoped to ETL or ETG level.

**Measurement Scope:** Network

**Recovery:**

No action required

## EvEtlPendingTransAvg

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Avg

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Average pending transactions to members of this ETL during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** An ETL Pending Request calculation  $P_t$  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.

**Measurement Scope:** Network

**Recovery:**

No action required

## EvEtlPendingTransCongestionOnset

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of times an ETL-PCL was advanced.

**Collection Interval:** 5 min

**Peg Condition:** Each time the ETL Window Congestion Level is advanced

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvEtlPendingTransDiscardPri0

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of Priority 0 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 0 Request message due to last connection evaluated being ETL Pending Transaction Limited

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.

3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

### EvEtlPendingTransDiscardPri1

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of Priority 1 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 1 Request message due to last connection evaluated being ETL Pending Transaction Limited

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, contact [My Oracle Support \(MOS\)](#).

### EvEtlPendingTransDiscardPri2

**Measurement Group:** Egress Throttle List Performance

**Measurement Type:** Simple



**Measurement Dimension:** Arrayed (by ETL ID)

**Description:** Number of Priority 2 Request Messages discarded (with or without response) due to last connection evaluated for routing being ETL Pending Transaction Limited

**Collection Interval:** 5 min

**Peg Condition:** Each time that Routing Layer discarded a Priority 2 Request message due to last connection evaluated being ETL Pending Transaction Limited

**Measurement Scope:** Network

**Recovery:**

1. Verify that the "Maximum EPT" for the ETL is set sufficiently high.
2. Adjust the EPT onset/abatement thresholds if necessary. Setting an abatement threshold too close to its onset threshold may trigger oscillation between higher and lower congestion levels.
3. Verify the "EPT Abatement Timeout" for the ETL is set sufficiently high. Short abatement time periods may result in triggering EPT throttling too rapidly.
4. Determine if other connections (not part of this ETL) to the adjacent Diameter Node are out of service thus causing more traffic to be sent on connections/peers of this ETL than what the adjacent Diameter Node can support on a per-connection basis.
5. Determine if the ETL is over-subscribed from a routing perspective. Any recent changes to DSR routing configurable may have inadvertently diverted more message traffic to connections/peers in this ETL.
6. Determine if the Peer is exhibiting congestion, causing it to either drop the Requests or process them slowly, causing Pending Transactions on DSR to increase and exceed the threshold.
7. If the problem persists, 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 39: FABR Application Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxFabrBlacklistedImsi	Number of request messages received containing IMSI of a Blacklisted subscriber.	5 min
RxFabrBlacklistedMsisdn	Number of request messages received containing MSISDN of Blacklisted subscriber.	5 min
RxFabrDecodeFailureResol	Number of Request messages rejected due to a message decoding error.	5 min

Measurement Tag	Description	Collection Interval
RxFabrInvalidImsiMcc	Number of times an AVP instance present in a Diameter request message is rejected due to the MCC contained in the decoded IMSI falling within one of the configured Reserved MCC Ranges.	5 min
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

Measurement Tag	Description	Collection Interval
TxFabrDbConFail	Number of database queries failed due to the Communication Agent queue exhaustion.	5 min
TxFabrFwdFail	Number of routing attempt failures due to internal resource exhaustion.	5 min

### RxFabrBlacklistedImsi

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** The number of request messages received containing IMSI of a Blacklisted subscriber

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception "BlackListed Subscriber" is invoked

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxFabrBlacklistedMsisdn

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** The number of request messages received containing MSISDN of Blacklisted subscriber

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception "BlackListed Subscriber" is invoked

**Measurement Scope:** Server Group

**Recovery:**

1. Validate which User identity address is not blacklisted by using DP configuration.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

### RxFabrDecodeFailureResol

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages rejected due to a message decoding error.

**Collection Interval:** 5 min

**Peg Condition:** For each routing exception when the Application ID is not valid or the AVP extends beyond the length of the message indicated by the Message Length parameter in the message header.

**Measurement Scope:** Server Group

**Recovery:**

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

## RxFabrInvalidImsiMcc

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times an AVP instance present in a Diameter request message is rejected due to the MCC contained in the decoded IMSI falling within one of the configured Reserved MCC Ranges.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Diameter request message is rejected due to the MCC contained in the decoded IMSI falling within one of the configured Reserved MCC Ranges.

**Measurement Scope:** Server Group

**Recovery:**

1. Validate the ranges configured in the Reserved MCC Ranges table.
2. Verify that the MCC portion of the decodable IMSI received by RBAR does not fall within the configured Reserved MCC Ranges.
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxFabrResolFailAll

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Total number of Request messages received which did not resolve a Destination address.

**Collection Interval:** 5 min

**Peg Condition:** For each Request message which did not resolve to a Destination address.

**Measurement Scope:** Server Group

**Recovery:**

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

**RxFabrResolFailCmdcode**

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with an unknown Command Code.

**Collection Interval:** 5 min

**Peg Condition:** For each routing exception where the (Application ID, Command Code) pair in the incoming Request message is not configured.

**Measurement Scope:** Server Group

**Recovery:**

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

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

**RxFabrResolFailDpCongested**

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Database queries that failed to be serviced due DP/ComAgent errors.

**Collection Interval:** 5 min

**Peg Condition:** When FABR application received service notification indicating Database (DP) or DB connection (ComAgent) Errors (DP timeout, errors, or ComAgent internal errors) for the sent database query.

**Measurement Scope:** Server Group

**Recovery:**

**RxFabrResolFailImpiMatch**

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received for which IMPI was used for Destination address resolution, but no Destination address was found.

**Collection Interval:** 5 min

**Peg Condition:** For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMPI.

**Measurement Scope:** Server Group

**Recovery:**

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## RxFabrResolFailImpuMatch

**Measurement Type:** Simple

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

**Description:** Number of Request messages received for which IMPU was used for Destination address resolution, but no Destination address was found.

**Collection Interval:** 5 min

**Peg Condition:** For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMPU.

**Measurement Scope:** Server Group

**Recovery:**

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## RxFabrResolFailImsiMatch

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received for which IMSI was used for Destination address resolution, but no Destination address was found.

**Collection Interval:** 5 min

**Peg Condition:** For each message which did not successfully resolve to a Destination using a Routing Entity Type of IMSI.

**Measurement Scope:** Server Group

**Recovery:**

1. Validate which destination address is associated with the user identity address by using DP GUI.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## RxFabrResolFailMsisdnMatch

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received for which MSISDN was used for Destination address resolution, but no Destination address was found.

**Collection Interval:** 5 min

**Peg Condition:** For each message which did not successfully resolve to a Destination using a Routing Entity Type of MSISDN.

**Measurement Scope:** Server Group

**Recovery:**

Validate which destination address is associated with the user identity address by using DP GUI.  
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

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of Request messages received with at least Routing Entity Address AVP but no valid Routing Entity Addresses were found.

**Collection Interval:** 5 min

**Peg Condition:** For each routing exception with no valid User Identity address found and the number of AVPs searched for the message was greater than 0.

**Measurement Scope:** Server Group

**Recovery:**

1. If this event is considered abnormal, then use validate which AVPs are configured for routing with the Application ID and Command Code using the FABR GUI screen.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## RxFabrSrvNotiDpComAgentErrors

**Measurement Group:** Full Address Resolution Exception

**Measurement Dimension:** Arrayed (per Diameter Application)

**Measurement Type:** Simple

**Description:** Number of failed Database queries received in the service notifications from Com Agent indicating DP/COM Agent errors.

**Collection Interval:** 5 min

**Peg Condition:** When FABR receives a service notification from Communication Agent indicating a DP/Communication Agent error.

**Measurement Scope:** MP

**Recovery:**

No action necessary.

## RxFabrTransactionsRejected

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of transactions rejected by FABR.

**Collection Interval:** 5 min

**Peg Condition:** Each time the RBAR application sends an answer response with Result-Code/Experimental-Code or abandons an ingress request message.

**Measurement Scope:** Server Group

**Recovery:**

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



## RxFabrUnkApplId

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages rejected due to an unknown Application ID.

**Collection Interval:** 5 min

**Peg Condition:** For each routing exception when the Application ID is not valid.

**Measurement Scope:** Server Group

**Recovery:**

1. The currently provisioned Diameter Application IDs can be viewed in the FABR Configuration & Maintenance GUI.
2. The currently provisioned Application Routing Rules can be viewed using **Main Menu > Diameter > Configuration > Application Routing Rules**.
3. Contact [My Oracle Support \(MOS\)](#) for assistance.

## TxFabrDbConFail

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of database queries failed due to the Communication Agent queue exhaustion.

**Collection Interval:** 5 min

**Peg Condition:** Each time the application attempts to send DP queries and fails due to Communication Agent queue exhaustion.

**Measurement Scope:** Server Group

**Recovery:**

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

## TxFabrFwdFail

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

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

**Description:** Number of routing attempt failures due to internal resource exhaustion.

**Collection Interval:** 5 min

**Peg Condition:** Each time the application attempts to enqueue a Request message on the DSR Relay Agent's "Request Message Queue" or enqueue a Answer message on "DRL Answer Queue" and it fails (e.g., queue full).

**Measurement Scope:** Server Group

**Recovery:**

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

## Full Address Based Resolution (FABR) Application Performance measurements

The "FABR Application Performance" measurement group is a set of measurements that provide performance information that is specific to the FABR feature. These measurements will allow you to determine how many messages are successfully forwarded and received to and from the FABR Application.

**Table 40: DSR Application Performance Measurement Report Fields**

Measurement Tag	Description	Collection Interval
FabrAverageQueriesPerBundle	Average number of queries per Bundle sent by FABR	5 min
RxDpResponseTimeAvg	Average time (in milliseconds) it takes to receive a DP response after sending the correlated database query.	5 min
RxFabrAvgMsgSize	Average size of Request message received.	5 min
RxFabrBundledResponseEvents	The number of Bundled Response Events received by FABR.	5 min
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

Measurement Tag	Description	Collection Interval
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

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average number of queries per Bundle sent by FABR

**Collection Interval:** 5 min

**Peg Condition:** When FABR successfully sends a Bundled query event to ComAgent for processing

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxDpResponseTimeAvg

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average time (in milliseconds) it takes to receive a DP response after sending the correlated database query.

**Collection Interval:** 5 min

**Peg Condition:** It is calculated based on the total number of sampled database queries during the collection interval.

**Measurement Scope:** MP

**Recovery:**

No action necessary.

## RxFabrAvgMsgSize

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Average

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

**Description:** Average size of Request message received.

**Collection Interval:** 5 min

**Peg Condition:** Average calculated for each Request message received.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## RxFabrBundledResponseEvents

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Bundled Response Events received by FABR.

**Collection Interval:** 5 min

**Peg Condition:** When FABR successfully receives a Bundled response event from ComAgent.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxFabrDpResponseMsgQueueAvg

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The average DP Response Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Request Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

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

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

## RxFabrDpResponseMsgQueuePeak

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The peak DSR Application's DP Response Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum DP Response Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

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

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

### RxFabrMsgs

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request messages received by FABR application.

**Collection Interval:** 5 min

**Peg Condition:** For each message successfully de-queued from the application's internal "Message Event" queue.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxFabrResolAll

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successfully Resolved to a Destination.

**Collection Interval:** 5 min

**Peg Condition:** For each message successfully resolved to a Destination.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxFabrResolAllMp

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Addresses Successfully Resolved to a Destination by the MP.

**Collection Interval:** 5 min

**Peg Condition:** For each message successfully resolved to a Destination by the MP.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxFabrResolImpi

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IMPI.

**Collection Interval:** 5 min

**Peg Condition:** For each message successfully resolved to a Destination using a Routing Entity Type of IMPI.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxFabrResolImpu

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IMPU.

**Collection Interval:** 5 min

**Peg Condition:** For each message successfully resolved to a Destination using a Routing Entity Type of IMPU.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxFabrResolImsi

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type IMSI.

**Collection Interval:** 5 min

**Peg Condition:** For each message successfully resolved to a Destination using a Routing Entity Type of IMSI.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxFabrResolMsisdn

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Addresses Successful Resolved with Routing Entity type MSISDN.

**Collection Interval:** 5 min

**Peg Condition:** For each message successfully resolved to a Destination using a Routing Entity Type of MSISDN.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxFabrResolRateAvg

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average Addresses Successfully Resolved per second.

**Collection Interval:** 5 min

**Peg Condition:** The “average per second” is periodically calculated based on the total number of addresses successfully resolved.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxFabrResolRatePeak

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Max

**Measurement Dimension:** Single



**Description:** Peak Addresses Successfully Resolved per second.

**Collection Interval:** 5 min

**Peg Condition:** At the end of each sample period associated with average successfully resolved message rate, as defined by measurement [RxFabrResolRateAvg](#), if the value exceeds the current value for this measurement, then the measurement will be updated with the current sample periods value.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxFabrSrvNotiDpCongest

**Measurement Group:** Full Address Resolution Exception

**Measurement Type:** Simple

**Description:** Number of Service Notifications received from ComAgent indicating DP is congested with CL=2 or CL=3.

**Collection Interval:** 5 min

**Peg Condition:** When FABR receives Service Notification from ComAgent indicating a DP congestion at CL=2 or CL=3.

**Measurement Scope:** MP

**Recovery:**

No action necessary.

## TxFabrAbandonRequest

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request message that are abandoned.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception "Abandon Request" is invoked.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## TxFabrBundledQueryEvents

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Bundled Query Events sent to ComAgent.

**Collection Interval:** 5 min

**Peg Condition:** When FABR successfully sends a Bundled query event to ComAgent for processing

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### **TxFabrFwdDefaultDest**

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request message forwarding attempts using a Default Destination.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception “Forward route the message with a user-configurable Default Destination” is invoked.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### **TxFabrFwdNochange**

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request message forwarding attempts without changing the message.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Routing Exception “Forward route the message unchanged” is invoked.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### **TxFabrFwdSuccess**

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request messages successfully forwarded (all reasons).

**Collection Interval:** 5 min

**Peg Condition:** Each time the application successfully enqueues a Request message on the DSR Relay Agent's Request Message Queue.

**Measurement Scope:** Server Group

**Recovery:**

If this value is less than *TxFabrMsgAttempt*, then an internal resource error is occurring.

Contact *My Oracle Support (MOS)* for assistance.

## TxFabrMsgAttempt

**Measurement Group:** Full Address Resolution Performance

**Measurement Type:** Simple

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

**Description:** Number of Request message forwarding attempts (all reasons).

**Collection Interval:** 5 min

**Peg Condition:** Each time the application attempts to enqueue a Request message on the DSR Relay Agent's "Request Message Queue".

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## GLA Exception measurements

The GLA Exception measurement group contains measurements that provide performance information that is specific to the GLA application.

**Table 41: 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

Measurement Tag	Description	Collection Interval
RxGlaDatabaseTimeouts	Number of GLA Requests that could not be processed due to pSBR-B query timeout	5 min

## RxGlaDecodeFailures

**Measurement Group:** GLA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of GGRs unsuccessfully processed due to unsupported Application ID, Command Code, Subscriber Info, or other decoding issue.

**Collection Interval:** 5 min

**Peg Condition:** During GGR failure handling

**Measurement Scope:** Server Group

**Recovery:**

1. While parsing the message, one of the following conditions occurred:
  - The message content was inconsistent with the "Message Length" in the message header.
  - The IMSI contained in the User-Name AVP was considered invalid due to length.
  - The MSISDN contained in the MSISDN AVP was considered invalid due to length.
2. These protocol errors can be caused by the originator of the message (identified by the Origin-Host AVP in the message) or the peer who forwarded the message to this node. Collect a trace containing the GGR, and determine which node is causing the invalid data.
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxGlaDatabaseFailures

**Measurement Group:** GLA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of GGRs unsuccessfully processed due to queries to pSBR-B receiving a negative acknowledgment.

**Collection Interval:** 5 min

**Peg Condition:** During pSBR-B query failures

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the current state of the pSBR-B via the **Communication Agent > Maintenance > HA Service Status** screen.

2. The status of the Reporting Server's BindingRd should be examined to verify that all SubResources are Available. This will provide information about Availability and Congestion of each SubResource.
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxGlaDatabaseTimeouts

**Measurement Group:** GLA Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of GGRs unsuccessfully processed due to queries to pSBR-B timing out before a response is received.

**Collection Interval:** 5 min

**Peg Condition:** During pSBR-B query failures

**Measurement Scope:** Server Group

**Recovery:**

1. Examine the current state of the pSBR-B via the **Communication Agent > Maintenance > HA Service Status** screen.
2. The status of the Reporting Server's BindingRd should be examined to verify that all SubResources are Available. This will provide information about Availability and Congestion of each SubResource.
3. If the problem persists, 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 42: 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

Measurement Tag	Description	Collection Interval
RxGlaFailureMsgs	Number of GLA requests that were not successfully process (for any reason)	5 min

## TxGlaSuccessMsgs

**Measurement Group:** GLA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of GGRs successfully processed

**Collection Interval:** 5 min

**Peg Condition:** When a GGA is transmitted following a successful query of the pSBR database

**Measurement Scope:** Server Group

**Recovery:**

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

## RxGlaResponseMsgQueuePeak

**Measurement Group:** GLA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Peak utilization of GLA's response queue that handles pSBR-B replies.

**Collection Interval:** 5 min

**Peg Condition:** Reception of a response Stack Event from pSBR-B.

**Measurement Scope:** Server Group

**Recovery:**

1. This number provides an indication of short-term work-rate of the response task. If this value crosses 75%, it indicates that processing rates are increasing and additional capacity may need to be added to the DSR.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxGlaResponseMsgQueueAvg

**Measurement Group:** GLA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Average utilization of GLA's response queue that handles pSBR-B replies.

**Collection Interval:** 5 min

**Peg Condition:** Reception of a response Stack Event from pSBR-B.

**Measurement Scope:** Server Group

**Recovery:**

1. This number provides an indication of sustained work-rate of the response task. If this value crosses 50%, it indicates that processing rates are increasing and additional capacity may need to be added to the DSR.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

### TxGlaSuccessMsgRatePeak

**Measurement Group:** GLA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Peak rate of GGRs successfully processed

**Collection Interval:** 5 min

**Peg Condition:** When a GGA is transmitted following a successful query of the pSBR database

**Measurement Scope:** Server Group

**Recovery:**

1. This number provides an indication of peak success work-rate of GLA. 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

**Measurement Group:** GLA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Average rate of GGRs successfully processed

**Collection Interval:** 5 min

**Peg Condition:** When a GGA is transmitted following a successful query of the pSBR database

**Measurement Scope:** Server Group

**Recovery:**

1. This number provides an indication of sustained success work-rate of GLA. 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

**Measurement Group:** GLA Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of GGRs unsuccessfully processed due to any problem.

**Collection Interval:** 5 min

**Peg Condition:** Any failure during processing

**Measurement Scope:** Server Group

**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
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.	
EvNetworkTraceStarted	Number of times that a network trace has been started.	

## EvIdihNumTtrsSent

**Measurement Group:** IDIH

**Measurement Type:** Simple



**Description:** The number of TTRs that were sent from DSR to DIH.

**Collection Interval:** 5 min

**Peg Condition:** Each time a TTR is successfully transmitted from DSR to DIH.

**Recovery:**

No action required

### **EvIdihNumTtrsDeliveryFailed**

**Measurement Group:** IDIH

**Measurement Type:** Simple

**Description:** The number of TTRs that could not be sent from DSR to DIH due to the failure of the ComAgent link.

**Collection Interval:** 5 min

**Peg Condition:** Each time a TTR cannot be successfully transmitted from DSR to DIH.

**Recovery:**

Re-establish the ComAgent link to DIH.

### **TmIdihTraceSuspendedTime**

**Measurement Group:** IDIH

**Measurement Type:** Duration

**Description:** The amount of time that trace limiting is active

**Collection Interval:** 5 min

**Peg Condition:** Each time trace limiting is activated and stopped when trace limiting is de-activated.

**Recovery:**

No action required

### **TmIdihTraceThrottlingTime**

**Measurement Group:** IDIH

**Measurement Type:** Duration

**Description:** The amount of time that trace throttling is active.

**Collection Interval:** 5 min

**Peg Condition:** Each time trace throttling is activated and stopped when trace throttling is de-activated.

**Recovery:**

No action required

**EvIdihThrottlingTtrsDiscarded****Measurement Group:** IDIH**Measurement Type:** Simple**Description:** The number of TTRs discarded due to trace throttling.**Collection Interval:** 5 min**Peg Condition:** Each time a TTR is discarded due to trace throttling.**Recovery:**

No action required

**EvInvalidIdihTraceAvp****Measurement Group:** IDIH**Measurement Dimension:** Single**Measurement Type:** Simple**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.**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 Dimension:** Single**Measurement Type:** Simple**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**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 43: IPFE Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
PcapDroppedPackets	Number of ARP/ICMP/ICMPv6 control packets dropped	5 min
ThrottledPackets	Number of packets dropped due to throttling	5 min, 30 min, 60 min
TsaUnexpctedSctp	Number of SCTP packets sent to a TSA configured as "TCP Only".	5 min
TsaUnexpctedTcp	Number of TCP packets sent to a TSA configured as "SCTP Only".	5 min
TxReject	Number of new associations rejected	5 min
TxRejectSctp	Number of new SCTP associations rejected	5 min

### PcapDroppedPackets

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** ARP/ICMP/ICMPv6 control packets dropped. The pcap library listens for packets on the network interfaces on behalf of the IPFE. If the network interface receives more packets than it can handle, the library will drop packets and increase a dropped packet counter.

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time the IPFE drops an ARP/ICMP/ICMPv6 control packet.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

1. In the unlikely event that counts should appear for this measurement, network diagnostics should be performed.
2. For further assistance, contact [My Oracle Support \(MOS\)](#).

## ThrottledPackets

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of packets dropped due to throttling

**Collection Interval:** 5 min, 30 min, 60 min

**Peg Condition:** When a packet is dropped to limit excessive IPFE CPU

**Measurement Scope:** Network

**Recovery:**

Increase DSR Capacity.

## TsaBadDestPortSctp

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** The number of packets received that had a destination port outside of the repsonder port range and the initiator port range.

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when a packet that has an out-of-range destination port is received

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

OAM validation should prevent a DA-MP from using an out-of-range port as a source port. Check the configuration of the peer node.

## TsaBadDestPortTcp

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** The number of packets received that had a destination port outside of the repsonder port range and the initiator port range.

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when a packet that has an out-of-range destination port is received

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

OAM validation should prevent a DA-MP from using an out-of-range port as a source port. Check the configuration of the peer node.

## TsaUnexpctedSctp

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** Number of SCTP packets sent to a TSA configured as "TCP Only".

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when an SCTP packet is received for a TSA configured as "TCP Only".

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

Check client configuration for clients attempting SCTP associations with a TCP-only TSA.

## TsaUnexpctedTcp

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** Number of TCP packets sent to a TSA configured as "SCTP Only".

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when a TCP packet is received for a TSA configured as "SCTP Only".

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

Check client configuration for clients attempting TCP connections on an SCTP-only TSA.

## TxReject

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** Number of new associations rejected. The IPFE rejects new associations when there are no available applications servers for the target set address. The associated alarm, 5009 - No available servers in target set (refer to the *DSR Alarms and KPIs Reference* for details about this alarm), will also be issued.

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time the IPFE rejects a new association for a target set address.

**Measurement Scope:** Network, NE, Server Group

**Recovery:**

Check the status of the application servers by navigating to the **Status & Manage > Server** page.

## TxRejectSctp

**Measurement Group:** IPFE Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** New SCTP associations rejected.

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when an SCTP association is rejected.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## IP Front End (IPFE) Performance measurements

The "IPFE Performance" measurement group contains measurements that provide performance information that is specific to the IPFE application. Counts for various expected/normal messages and events are included in this group. Measurements such as the following are included.

**Table 44: 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
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

Measurement Tag	Description	Collection Interval
RxIpfePackets	Number of packets received by the IPFE	5 min
RxTsaBytes	Number of bytes received for each TSA	5 min
RxTsaBytesSctp	Number of SCTP bytes received for each TSA	5 min
RxTsaPackets	Number of packets received for each TSA	5 min
RxTsaPacketsSctp	Number of SCTP packets received for each TSA	5 min
TsaNewAssociations	Number of new associations for each TSA	5 min
TsaNewAssociationsSctp	Number of new SCTP associations for each TSA	5 min
TxAsBytes	Number of bytes sent for each server	5 min
TxAsBytesSctp	Number of SCTP bytes sent for each server	5 min
TxAsPackets	Number of packets sent for each server	5 min
TxAsPacketsSctp	Number of SCTP packets sent for each server	5 min

## AsNewAssociations

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Application Server ID)

**Description:** New associations for each server

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time the IPFE associates a client packet with an application server.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## AsNewAssociationsSctp

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Application Server ID)

**Description:** New SCTP associations for each server,

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when a new SCTP association is established for an application server.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

### IpfeNewAssociations

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** New associations for the IPFE

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time the IPFE associates a client packet with an application server.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

### IpfeNewAssociationsSctp

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** New SCTP associations for the IPFE ,

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when a new SCTP association is established through an IPFE.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

### RxIpfeBytes

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of bytes received by the IPFE.



**Collection Interval:** 5 minutes, 30 minutes, 60 minutes

**Peg Condition:** The measurement is incremented by one for each byte the IPFE receives.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

### RxIpfeBytesSctp

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of SCTP bytes received by the IPFE.

**Collection Interval:** 5 minutes, 30 minutes, 60 minutes

**Peg Condition:** Incremented by the packet payload size when an SCTP packet is received by the IPFE.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

### RxIpfePackets

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Packets received by the IPFE

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one for each packet the IPFE receives.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

### RxTsaBytes

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** Bytes received for each TSA.

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time a byte is received for a particular target set address.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## RxTsaBytesSctp

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** SCTP bytes received for each TSA.

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time an SCTP byte is received for a particular target set address.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## RxTsaPackets

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** Packets received for each TSA

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time a packet is received for a particular TSA.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None 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:** None 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:**

**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:** None required

## TsaNewAssociationsSctp

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** New SCTP associations for each TSA.

**Collection Interval:** 5 minutes

**Peg Condition:** Incremented when a new SCTP association is established for a TSA.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## TxAsBytes

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Bytes sent for each server

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time a byte is sent to a particular application server.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## TxAsBytesSctp

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by TSA ID)

**Description:** SCTP bytes sent for each server

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time an SCTP byte is sent to a particular application server.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## TxAsPackets

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Application Server ID)

**Description:** Packets sent for each server.

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time a packet is sent to a particular application server.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## TxAsPacketsSctp

**Measurement Group:** IPFE Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Application Server ID)

**Description:** SCTP packets sent for each server.

**Collection Interval:** 5 minutes

**Peg Condition:** This measurement is incremented by one each time an SCTP packet is sent to a particular application server.

**Measurement Scope:** Network, NE, Server Group

**Recovery:** None required

## Link Exception measurements

Table 45: 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
RxLnkM3uaERROR	Number of times an M3UA ERROR message was received for the link. M3UA ERROR message are sent to indicate invalid M3UA signaling.	30 min
RxLnkInvalidM3ua	Number of invalid M3UA messages received on the link. Invalid M3UA messages are messages that violate the M3UA protocol, but which can be attributed to a specific link (i.e., a valid routing context exists, or no routing context is necessary).	30 min

## EvLnkActAckTO

**Measurement Group:** Link Exception

**Measurement Type:** Simple

**Description:** The number of times the link timed out waiting for ASP-ACTIVE-ACK. An ASP-ACTIVE-ACK is sent by the SG in response to an ASP-ACTIVE message on the link. The link is not available for M3UA data signaling until the ASP-ACTIVE-ACK is received.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time:

- An ASP-ACTIVE has been sent for the link and the M3UA State Management ACK timer has expired, but no ASP-ACTIVE-ACK was received for the link.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement should have a zero value. You can view Link status from the GUI main menu under **SS7/Sigtran>Maintenance>Links**.
2. Check the event history log from the GUI main menu under **Alarms & Events>View History**. Look for **Event ID 19229**, which shows when the ASP-ACTIVE-ACK timeout occurs.
3. Verify that the far-end of the link on the SG is not undergoing maintenance.
4. Verify that the **State Management ACK Timer** period is not set too short.
5. Verify that the IP network between the MP server and the SG is performing up to expectations.
6. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxLnkUnsollInactAck

**Measurement Group:** Link Exception

**Measurement Type:** Simple

**Description:** The number of times an unsolicited ASP-INACTIVE-ACK was received on the link. ASP-INACTIVE-ACK may be sent unsolicited by the SG to indicate that the specified link is no longer able to process M3UA data signaling. The MP server will begin attempts to bring the link back into the signaling state matching its administrative state. For example, if the link is **Enabled**, the MP server will attempt to restore M3UA data signaling on the link by sending an ASP-ACTIVE and waiting for an ASP-ACTIVE-ACK.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an unsolicited ASP-INACTIVE-ACK is received on the link.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement should have a zero value. A non-zero value means that the far-end of the link has stopped processing M3UA data. You can view Link status from the GUI main menu under **SS7/Sigtran>Maintenance>Links**.

2. Check the event history log from the GUI main menu under **Alarms & Events>View History**, looking for **Event ID 19230**. **Event ID 19230** will show when the unsolicited ASP-INACTIVE-ACK was received.
3. Verify whether the far-end of the link is undergoing maintenance.
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxLnkM3uaERROR

**Measurement Group:** Link Exception

**Measurement Type:** Simple

**Description:** The number of times an M3UA ERROR message was received for the link. M3UA ERROR message are sent to indicate invalid M3UA signaling.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time:

- An M3UA ERROR message is received and that ERROR message can be attributed to a specific link (i.e., the ERROR message contains a valid routing context, or no routing context is needed).

**Measurement Scope:** NE, Server

**Recovery:**

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

## RxLnkInvalidM3ua

**Measurement Group:** Link Exception

**Measurement Type:** Simple

**Description:** The number of invalid M3UA messages received on the link. Invalid M3UA messages are messages that violate the M3UA protocol, but which can be attributed to a specific link (i.e., a valid routing context exists or no routing context is necessary).

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an invalid M3UA message is received for the link.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement should have a value of zero. A non-zero value indicates a problem with the M3UA signaling received by the MP server.

2. Look for **Event ID 19231** from the GUI main menu under **Alarms & Events>View History**. **Event ID 19231** provides information on the reason the M3UA message was rejected.
3. If the ERROR reason in **Event ID 19231** indicates a problem with the routing context (i.e., error code 0x19), verify that the MP server link set and the SG are configured to agree on the routing context values that each M3UA signaling link uses.
4. 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 46: 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
TxLnkMSUOctets	Number of MSU octets sent on the link. MSU octets includes all M3UA messages, both DATA and non-DATA.	30 min
RxLnkMSUOctets	Number of MSU octets received on the link. MSU octets includes all M3UA messages, both DATA and non-DATA.	30 min

### TxLnkMSU

**Measurement Group:** Link Performance

**Measurement Dimension:** Arrayed (per link)

**Measurement Type:** Simple

**Description:** The number of MSUs sent on the link, including all M3UA messages, both DATA and non-DATA.

**Note:** ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.



**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an M3UA message is sent on the link.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

### RxLnkMSU

**Measurement Group:** Link Performance

**Measurement Type:** Simple

**Description:** The number of MSUs received on the link. MSUs includes all M3UA messages, both DATA and non-DATA. Note: ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an M3UA message is received on the link.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

### TxLnkMSUOctets

**Measurement ID:** 9115

**Measurement Group:** Link Performance

**Measurement Dimension:** Arrayed (per link)

**Measurement Type:** Simple

**Description:** The number of MSU octets sent on the link, including all M3UA messages, both DATA and non-DATA.

**Note:** ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by the number of octets in the MSU (not including SCTP, IP, or Ethernet headers) each time an M3UA message is sent on the link.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxLnkMSUOctets

**Measurement Group:** Link Performance

**Measurement Type:** Simple

**Description:** The number of MSU octets received on the link – MSU octets includes all M3UA messages, both DATA and non-DATA. Note: ASPSM messages and some M3UA ERROR messages cannot be mapped to a link and are therefore not counted in this measurement.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by the number of octets in the MSU (not including SCTP, IP, or Ethernet headers) each time an M3UA message is received on the link.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## Link Set Performance measurements

**Table 47: Link Set Performance Measurement Report Fields**

Measurement Tag	Description	Collection Interval
TxLnkSetMSU	Number of MSUs sent on the link set. MSUs includes all M3UA DATA messages sent on all links in the link set.	30 min
RxLnkSetMSU	Number of MSUs received on the link set. MSUs includes all M3UA DATA messages received on all links in the link set.	30 min
TxLnkSetMSUOctets	Number of MSU octets sent on the link set. MSU octets includes all M3UA DATA octets sent on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.	30 min
RxLnkSetMSUOctets	Number of MSU octets received on the link set. MSU octets includes all M3UA DATA octets received on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.	30 min

## TxLnkSetMSU

**Measurement Group:** Link Set Performance

**Measurement Dimension:** Arrayed (per link set)

**Measurement Type:** Simple

**Description:** The number of MSUs sent on the link set , including all M3UA DATA messages sent on all links in the link set.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an M3UA DATA message is sent on a link in the link set.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxLnkSetMSU

**Measurement Group:** Link Set Performance

**Measurement Type:** Simple

**Description:** The number of MSUs received on the link set . MSUs includes all M3UA DATA messages received on all links in the link set.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an M3UA DATA message is received on a link in the link set.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## TxLnkSetMSUOctets

**Measurement ID:** 9126

**Measurement Group:** Link Set Performance

**Measurement Dimension:** Arrayed (per link set)

**Measurement Type:** Simple

**Description:** The number of MSU octets sent on the link set, including all M3UA DATA octets sent on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by the number of octets in the M3UA DATA message each time an M3UA DATA message is sent on a link in the link set.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxLnkSetMSUOctets

**Measurement Group:** Link Set Performance

**Measurement Type:** Simple

**Description:** The number of MSU octets received on the link set. MSU octets include all M3UA DATA octets received on all links in the link set. Octets for SCTP, IP, and Ethernet headers are not included.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by the number of octets in the M3UA DATA message each time an M3UA DATA message is received on a link in the link set.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## Link Set Usage measurements

**Table 48: Link Set Usage Measurement Report Fields**

Measurement Tag	Description	Collection Interval
TmM3RLLinksetUnavail	Total time (in seconds) that all links in the link set were unavailable to M3RL during the measurement interval, regardless of whether the links were automatically or manually made unavailable.	30 min

### TmM3RLLinksetUnavail

**Measurement Group:** Link Set Usage

**Measurement Dimension:** Arrayed (by Linkset)

**Measurement Type:** Duration

**Description:** Total time (in seconds) that all links in the link set were unavailable to M3RL during the measurement interval, regardless of whether the links were automatically or manually made unavailable.

**Collection Interval:** 30 min

**Peg Condition:** M3RL must maintain an accurate time and measurement of the number of seconds during the collection period that the Link Set's state is **Unavailable**. This measurement is associated with the duration (in seconds) that Alarm 19202 - Link Set Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted during the collection period.

Start of duration measurement for Link Set "X" criteria:

1. Alarm 19202 is asserted for Link Set "X."
2. Start of new collection period AND Alarm 19202 for Linkset "X" is already asserted (during a previous collection interval).

Stop of duration measurement for Link Set "X" criteria:

1. Alarm 19202 for Linkset "X" is cleared (i.e, Link Set becomes **Available**).
2. End of collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of the availability of a Link Set. No action required.

## Link Usage measurements

Table 49: 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</li> </ul>	30 min

Measurement Tag	Description	Collection Interval
	establish SCTP connection, failed to receive ASP-UP-ACK, received unsolicited ASP-DOWN-ACK.	
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

**Measurement Group:** Link Usage

**Measurement Dimension:** Arrayed (per link)

**Measurement Type:** Duration

**Description:** The number of seconds the link is manual out of service during the reporting period. A link is manual out of service when the link is in the **Disabled** administrative state.

**Collection Interval:** 30 min

**Peg Condition:** 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.

**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 Dimension:** Arrayed (per link)

**Measurement Type:** Duration

**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

**Measurement Group:** Link Usage

**Measurement Dimension:** Arrayed (per link)

**Measurement Type:** Duration

**Description:** The number of seconds the link is in service during the reporting period. The link is considered to be in service if the link's status reason is **Normal**. An in-service link is available for M3UA DATA signaling.

**Collection Interval:** 30 min

**Peg Condition:** Time is accumulated for this measurement when the link status reason is **Normal**.

**Measurement Scope:** NE, Server

**Recovery:**

1. If all is well, this value should equal the length of the reporting period, meaning that the link was active for the entire reporting period. If the link-available time is not equal to the reporting period, it could be due to one of the following conditions:
  - Link maintenance. The measurements **TmLnkMOOS** and **TmLnkOOS** should have a non-zero values. See the actions for [TmLnkMOOS](#).
  - Link failure. The measurement **TmLnkOOS** should have a non-zero value. See the actions for [TmLnkOOS](#).
  - The link was added during the reporting period. The report indicates that the data is incomplete for the reporting period.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvLnkManClose

**Measurement Group:** Link Usage

**Measurement Type:** Simple

**Description:** The number of times a link was closed due to manual action. This count indicates the number of times that a link transitioned from ASP-ACTIVE to ASP-INACTIVE as a direct result of someone changing the link administrative state from **Enabled** to **Disabled**.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time:

- The link administrative state is changed from **Enabled** to **Disabled**, causing a protocol state transition from ASP-ACTIVE to ASP-INACTIVE.

**Measurement Scope:** NE, Server

**Recovery:**

1. If the link is known to be under maintenance, then no further action is necessary. If the link was not known to be under maintenance, then link status can be viewed from the GUI main menu under **SS7/Sigtran>Maintenance>Links**.
2. View the event history from the GUI main menu under **Alarms & Events>View History** looking for **Event ID 19234**. **Event ID 19234** shows the manual link state transitions and contains a time-stamp of when the change occurred.
3. The security logs from the GUI main menu under **Security Logs** can be searched using the time-stamp from the event history log to determine which login performed the manual state change on the link.
4. 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 50: 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
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

Measurement Tag	Description	Collection Interval
EvMdlwfInterwrkFailDsrInitiated	Number of interworking attempts that failed due to action initiated by MD-IWF (not due to far end)	5 min
EvMdlwfInterwrkFailSysError	Number of interworking attempts that failed due to internal processing error	5 min
EvMdlwfMessageFailResExh	Number of times a message could not be processed due to resource exhaustion	5 min
EvMdlwfTransRejectByDiamExtNode	Number of transactions where Diameter external node sends non-2xxx Answer to DSR, and MD-IWF sends error response to SS7	5 min

### TxMdlwfSs7TransmitFailure

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of outgoing SS7 messages to the SS7 network that could not be routed (e.g. queue full).

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF attempts to send a MAP message to the SS7 network (via the SS7 stack), but the message could not be routed.

**Measurement Scope:** Site

**Recovery:**

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

### RxMdlwfOrphanMapResponse

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of orphan MAP Response messages received.

**Collection Interval:** 5 min

**Peg Condition:** Each time the MD-IWF Application received a MAP response message for which no Pending Transaction record exists.

**Measurement Scope:** Site

**Recovery:**

1. If this measurement is being pegged frequently, the configurable MAP Response timer may be set too low. The MAP Response Timeout value can be viewed via **Main Menu > MAP-Diameter IWF > Configuration > MD-IWF Option**.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvMdIwfMapResponseTimeout

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of timeouts waiting for MAP Response.

**Collection Interval:** 5 min

**Peg Condition:** Each time the MD-IWF Application sent a MAP request message to the SS7 network, but timed out waiting for the MAP response

**Measurement Scope:** Site

**Recovery:**

1. Diameter-to-MAP timeouts are most likely caused by excessive SS7 network delays. It is possible that the MAP Response Timeout value is set too low.
2. The configured MAP Response Timeout value can be viewed via the NO GUI **Main Menu > MAP-Diameter IWF > Configuration > MD-IWF Options**.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxMdIwfDiamNon2xxxAnswer

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Diameter Non-2xxx Answers received.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter Answer message from a DA-MP where the result-Code value is non-2xxx

**Measurement Scope:** Site

**Recovery:**

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

## RxMdIwfOrphanDiamAnswer

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of orphan Diameter Answer messages received.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter Answer message for which no Pending Transaction record exists

**Measurement Scope:** Site

**Recovery:**

1. When MD-IWF sends a Diameter Request message to a DA-MP, it allocated a PTR and starts a timer (value is user configurable). The pending transaction is abandoned if a Diameter Answer response is not received within the user-configurable time limit. If this event is occurring frequently, the timer may be set too low. The Diameter Response Timeout value can be viewed via the **Main Menu > MAP-Diameter IWF > Configuration > MD-IWF Options** NO GUI Screen.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvMdlwfDiamAnswerTimeout

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of timeouts following message sent to DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time D-IWF sends a Diameter Request message to the DA-MP, but times out waiting for the Diameter Answer

**Measurement Scope:** Site

**Recovery:**

1. MAP-to-Diameter timeouts could be caused by delays in the Diameter network. It is possible that the Diameter Response Timeout value is set too low.
2. The configured Diameter Response Timeout value can be viewed via the NO GUI **Main Menu > MAP-Diameter IWF > Configuration > MD-IWF Options**.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxMdlwfDiamAnswerUnexpectedDaMp

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of Diameter Answer messages received from unexpected DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives Diameter Answer from an unexpected DA-MP.

**Measurement Scope:** Site

**Recovery:**

This error is not expected to occur. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### TxMdIwfFailComAgentEnqueue

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of times MD-IWF failed to enqueue a Diameter message to ComAgent.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF attempts to send a Diameter message to a DA-MP via ComAgent, but is unable to enqueue the message.

**Measurement Scope:** Site

**Recovery:**

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

### RxMdIwfComAgentError

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of Diameter Request messages sent to DA-MP that results in ComAgent error / timeout or in DM-IWF NACK

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a Diameter Request message to DM-IWF that results in a ComAgent error / timeout or in a DM-IWF NACK.

**Measurement Scope:** Site

**Recovery:**

No action required.

### RxMdIwfDiamPduPoolEmpty

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of messages discarded when Diameter PDU pool is exhausted.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF discards a message due to Diameter PDU pool exhaustion

**Measurement Scope:** Site

**Recovery:**

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

### EvMdlwfInterwrkFail

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The total number of interworking attempts that failed for any reason (internal or because of something from the far end).

**Collection Interval:** 5 min

**Peg Condition:** Each time an interworking attempt by MD-IWF fails.

**Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt.

**Note:** A Diameter-initiated interworking attempt fails if the final Diameter Answer sent back has a non-2xxx result code. A MAP-initiated interworking attempt fails if the final MAP response message is an abort, error, or reject. It is also a failure if the configured Diameter Exception or MAP Exception is carried out.

**Measurement Scope:** Site

**Recovery:**

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

### EvMdlwfInterwrkFailAddrTrans

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of interworking attempts that failed while attempting Address Translation (either Map-to-Diameter or Diameter-to-Map).

**Collection Interval:** 5 min

**Peg Condition:** Each time a failure occurs when MD-IWF attempts to perform address translation.

**Note:** Address Translation involves converting between Diameter addresses (i.e. Orig- and Dest- Host & Realm) and SS7 addresses (i.e. CgPa, CdPa, OPC, DPC).

**Measurement Scope:** Site

**Recovery:**

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

## EvMdlwfInterwrkFailMsgTrans

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of interworking attempts that failed while attempting message translation.

**Collection Interval:** 5 min

**Peg Condition:** Each time a failure occurs when MD-IWF attempts to perform message translation.

**Note:** Message Translation involves mapping between AVPs in a Diameter message and parameters in a MAP message.

**Measurement Scope:** Site

**Recovery:**

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

## TxMdlwfDiamEdlEncodeFailure

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of times an EDL failure occurred while MD-IWF attempted to encode a Diameter message

**Peg Condition:** This measurement is pegged each time MD-IWF attempts to encode a Diameter message to be sent to a DA-MP, but an EDL encode failure occurs. Event 33080 - EDL failure occurred while MD-IWF attempted to encode a Diameter message (refer to the *DSR Alarms and KPIs Reference* for details about this event) will be raised when this condition occurs.

**Collection Interval:** 5 min

**Measurement Scope:** Site

**Recovery:**

1. If the encode failure is due to Diameter message size - the failure reason can be determined from Event 33080 - EDL failure occurred while MD-IWF attempted to encode a Diameter message (refer to the *DSR Alarms and KPIs Reference* for details about this event) - it may be necessary to increase the engineering configurable parameter (DiameterMaxMessageSize in table MapIwfLongConfig) for maximum Diameter message size.
2. Contact [My Oracle Support \(MOS\)](#) for assistance if this measurement is being pegged frequently.

**EvMdIwfInterwrkFailCongest**

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of interworking attempts that failed due to MD-IWF Congestion.

**Collection Interval:** 5 min

**Peg Condition:** Each time an interworking attempt by MD-IWF fails due to MD-IWF congestion.

**Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt.

**Measurement Scope:** Site

**Recovery:**

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

**EvMdIwfInterwrkFailFarEndResponse**

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of interworking attempts that failed due to error response received from far end

**Peg Condition:** This measurement is pegged each time an interworking attempt by MD-IWF fails due to receiving an error response from the far end. The error response could be a non-2xxx Diameter Answer, or a MAP U-Abort or Reject.

**Note:** An interworking attempt is defined in [EvMdIwfInterwrkAttempt](#)

**Collection Interval:** 5 min

**Measurement Scope:** Site

**Recovery:**

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

**EvMdIwfInterwrkFailDsrInitiated**

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple



**Description:** Number of interworking attempts that failed due to action initiated by MD-IWF (not due to far end)

**Peg Condition:** This measurement is pegged each time an interworking attempt by MD-IWF fails due to an action initiated by MD-IWF (i.e. message translation failed, address translation failed, timeout occurred). This measurement does NOT include failures that are due to an error response received from the far end.

**Note:** An interworking attempt is defined in [EvMdlwfInterwrkAttempt](#).

**Collection Interval:** 5 min

**Measurement Scope:** Site

**Recovery:**

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

## EvMdlwfInterwrkFailSysError

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of interworking attempts that failed due to internal processing error.

**Collection Interval:** 5 min

**Peg Condition:** Each time an interworking attempt by MD-IWF fails due to internal processing error.

**Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt.

**Note:** Examples of internal processing errors are ComAgent error, ComAgent congestion, and resource exhaustion.

**Measurement Scope:** Site

**Recovery:**

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

## EvMdlwfMessageFailResExh

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The number of times a message could not be processed due to resource exhaustion.

**Collection Interval:** 5 min

**Peg Condition:** Each time a message cannot be processed by MD-IWF due to resource exhaustion.

**Note:** Examples of resource exhaustion are PTR exhaustion, PDU exhaustion, and queue full.

**Measurement Scope:** Site

**Recovery:**

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

## EvMdlwfTransRejectByDiamExtNode

**Measurement Group:** MD-IWF Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of transactions where Diameter external node sends non-2xxx Answer to DSR, and MD-IWF sends error response to SS7

**Peg Condition:** This measurement is pegged when a Diameter external node sends a non-2xxx Answer to DSR, which is then forwarded by DM-IWF (on DA-MP) to MD-IWF (on SS7-MP), and MD-IWF in turn sends an error response (Abort or Reject) to the SS7 network.

**Collection Interval:** 5 min

**Measurement Scope:** Site

**Recovery:**

No action required

## MD-IWF Performance measurements

The MD-IWF Performance measurement report contains measurements providing performance that is specific to the MAP-Diameter IWF Application running on a SS7-MP.

**Table 51: 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

Measurement Tag	Description	Collection Interval
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
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

Measurement Tag	Description	Collection Interval
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
EvMdIwfMap2DiamPtrUtilAvg	Average MapToDiam PTR utilization	5 min
TmMdIwfMap2DiamPtrHoldTimeAvg	Average hold time (in milliseconds) of MAP-to-Diameter transactions processed by MD-IWF	5 min
TmMdIwfDiam2MapPtrHoldTimeAvg	Average hold time (in milliseconds) of Diameter-to-MAP transactions processed by MD-IWF	5 min
EvMdIwfTransSuccessByDiamExtNode	Number of transactions where Diameter external node sends success (2xxx) Answer to DSR, and MD-IWF sends success response to SS7	5 min

## RxMdIwfSS7Msg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of MAP messages received from the SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a MAP message from the SS7 network. This includes both request and response messages.

**Measurement Scope:** Site

**Recovery:**

No action required.

### TxMdIwfSS7Msg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of MAP messages sent to SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a MAP message to the SS7 network. This includes both request and response messages.

**Measurement Scope:** Site

**Recovery:**

No action required.

### RxMdIwfMapRequestMsg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of MAP request messages received from SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a MAP request message from the SS7 network.

**Measurement Scope:** Site

**Recovery:**

No action required

### **TxMdIwfMapRequestMsg**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of MAP request messages to SS7 network

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a MAP request message to the SS7 network

**Measurement Scope:** Site

**Recovery:**

No action required.

### **RxMdIwfMapResponseMsg**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of MAP response messages received from SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a MAP response message from the SS7 network

**Measurement Scope:** Site

**Recovery:**

No action required.

### **TxMdIwfMapResponseMsg**

**Measurement Group:** MD-IWF Performance

**Measurement Type:** Simple

**Description:** The number of MAP response messages sent to SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a MAP response message to the SS7 network. This measurement counts "success" responses, but doesn't count errors, rejects, or aborts.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMdIwfDiamMsg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Diameter messages from DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter message from a DA-MP. This includes both Request and Answer messages.

**Measurement Scope:** Site

**Recovery:**

No action required.

## TxMdIwfDiamMsg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Diameter successfully sent to DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a Diameter message to a DA-MP. This includes both Request and Answer messages.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMdIwfDiamRequestMsg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Diameter Request messages received from DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter Request message from a DA-MP.

**Measurement Scope:** Site

**Recovery:**

No action required.

### **RxMdIwfDiamAnswerMsg**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Diameter Answer messages received from DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter Answer message from a DA-MP.

**Measurement Scope:** Site

**Recovery:**

No action required.

### **TxMdIwfDiamRequestMsg**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Diameter Request messages sent to DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a Diameter Request message to a DA-MP

**Measurement Scope:** Site

**Recovery:**

No action required.

### **TxMdIwfDiamAnswerMsg**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Diameter Answer messages sent to DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a Diameter Answer message to a DA-MP.

**Measurement Scope:** Site

**Recovery:**



No action required.

## EvMdIwfInterwrkAttempt

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** Total number of interworking attempts made. One attempt includes all of the messages within a transaction that are required to perform the interworking (not counting each message). A transaction can be Diameter-originated or MAP-originated

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF attempts to translate a MAP message into a Diameter message or translate a Diameter message into a MAP message.

**Note:** If a translation involves a Dialog Continuation and multiple messages are exchanged to perform the translation (i.e. TC-Begin, multiple TC-Continue, TC-End), then this is counted as a single interworking attempt.

**Measurement Scope:** Site

**Recovery:**

No action required.

## EvMdIwfInterwrkSuccess

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Measurement 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 Dimension:** Single

**Measurement Type:** Simple

**Measurement Description:** The total number of messages received by MD-IWF, including MAP messages received from the SS7 network and Diameter messages received from DA-MPs.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a message. This number includes MAP messages that are received from the SS7 network and Diameter messages that are received from DA-MPs.

**Note:** This measurement serves as a baseline for calculating measurements [RxMdIwfIngressMsgRateAvg](#) and [RxMdIwfIngressMsgRatePeak](#) as well as KPI Ingress Message Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMdIwfIngressMsgRateAvg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average MD-IWF ingress message rate, including MAP messages received from SS7 network and Diameter messages received from DA-MPs.

**Collection Interval:** 5 min

**Peg Condition:** Each time KPI Ingress Message Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples [RxMdIwfIngressMsgCount](#).

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMdIwfIngressMsgRatePeak

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** The peak MD-IWF ingress message rate, including MAP messages received from SS7 network and Diameter messages received from DA-MPs.

**Collection Interval:** 5 min

**Peg Condition:** Each time KPI Ingress Message Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples [RxMdlwflIngressMsgCount](#).

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMap2DiamTransMsgCount

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The total number of MAP-to-Diameter transaction messages by MD-IWF.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a MAP request message from the SS7 network and each subsequent message that MD-IWF receives in the MAP-to-Diameter transaction.

**Note:** For example, MD-IWF could receive a CancelLocationArg from the SS7 network, send a Diameter CLR to a DA-MP, receive a Diameter CLA from a DA-MP, and send a CancelLocationRes to the SS7 network. In this example, there are 2 messages that are pegged in the MAP-to-Diameter transaction.

**Note:** This measurement serves as a baseline for calculating measurements [RxMap2DiamTransMsgRateAvg](#) and [RxMap2DiamTransMsgRatePeak](#) as well as KPI MAP-to-Diameter Ingress Msg Rate found in KPI MAP-to-Diameter Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMap2DiamTransMsgRateAvg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average MAP-to-Diameter transaction messages rate.

**Collection Interval:** 5 min

**Peg Condition:** Each time KPI MAP-to-Diameter Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples [RxMap2DiamTransMsgCount](#).

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMap2DiamTransMsgRatePeak

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** The peak MAP-to-Diameter transaction messages rate.

**Collection Interval:** 5 min

**Peg Condition:** Each time KPI MAP-to-Diameter Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI) samples [RxMap2DiamTransMsgCount](#).

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxDiam2MapTransMsgCount

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The total number of Diameter-to-MAP transaction messages received by MD-IWF.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter Request message from a DA-MP and each subsequent message that MD-IWF receives in the Diameter-to-MAP transaction.

**Note:** For example, MD-IWF could receive a Diameter CLR message from the a DA-MP, send a CancelLocationArg to the SS7 Network, receive a CancelLocationRes from the SS7 network, and send a Diameter CLA to the DA-MP. In this example, there are 2 messages that are pegged in the MAP-to-Diameter transaction.

**Note:** This measurement serves as a baseline for calculating measurements [RxDiam2MapTransMsgRateAvg](#) and [RxDiam2MapTransMsgRatePeak](#) as well as KPI Diameter-to-MAP Trans Msg Rate (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxDiam2MapTransMsgRateAvg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**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 Dimension:** Single

**Measurement Type:** Max

**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 Dimension:** Arrayed (by Task ID)

**Measurement Type:** Max

**Description:** The peak DiamTrans Task Message Queue utilization.

**Collection Interval:** 5 min

**Peg Condition:** For each DiamTrans task, this peg represents the maximum DiamTrans Task Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMdIwfDiamTransMsgQueueAvg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Arrayed (by Task ID)

**Measurement Type:** Average

**Description:** The average DiamTrans Task Message Queue utilization.

**Collection Interval:** 5 min

**Peg Condition:** For each DiamTrans task, this peg represents the average DiamTrans Task Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMdIwfMapTransMsgQueuePeak

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Arrayed (by Task ID)

**Measurement Type:** Max

**Description:** The peak MapTrans Task Message Queue utilization.

**Collection Interval:** 5 min

**Peg Condition:** For each MapTrans task, this peg represents the maximum MapTrans Task Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxMdIwfMapTransMsgQueueAvg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Arrayed (by Task ID)

**Measurement Type:** Average

**Description:** The average MapTrans Task Message Queue utilization.

**Collection Interval:** 5 min

**Peg Condition:** For each MapTrans task, this peg represents the average MapTrans Task Message Queue utilization sample taken during the collection interval

**Measurement Scope:** Site

**Recovery:**

No action required.

### **RxMdIwfDampInterfaceMsgQueuePeak**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** The peak DampInterface Task Message Queue utilization.

**Collection Interval:** 5 min

**Peg Condition:** This peg represents the maximum DAMPInterface Task Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Site

**Recovery:**

No action required.

### **RxMdIwfDampInterfaceMsgQueueAvg**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average DampInterface Task Message Queue utilization.

**Collection Interval:** 5 min

**Peg Condition:** This peg represents the average DAMPInterface Task Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Site

**Recovery:**

No action required.

### **EvMdIwfDiam2MapPtrUtilPeak**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**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 Dimension:** Single

**Measurement Type:** Average

**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 Dimension:** Single

**Measurement Type:** Max

**Description:** The peak MapToDiam PTR utilization.

**Collection Interval:** 5 min

**Peg Condition:** This peg represents the maximum MapToDiam PTR utilization sample taken during the collection interval.

**Measurement Scope:** Site

**Recovery:**

No action required.

### **EvMdIwfMap2DiamPtrUtilAvg**

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average MapToDiam PTR utilization.

**Collection Interval:** 5 min



**Peg Condition:** This peg represents the average MapToDiam PTR utilization sample taken during the collection interval.

**Measurement Scope:** Site

**Recovery:**

No action required

### TmMdIwfMap2DiamPtrHoldTimeAvg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** Average hold time (in milliseconds) of MAP-to-Diameter transactions processed by MD-IWF

**Peg Condition:** The transaction hold time begins when a MAP-to-Diam Pending Transaction Record (PTR) is allocated and ends when the PTR is deallocated. This measurement is pegged when the PTR is deallocated.

**Collection Interval:** 5 min

**Measurement Scope:** Site

**Recovery:**

No action required

### TmMdIwfDiam2MapPtrHoldTimeAvg

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** Average hold time (in milliseconds) of Diameter-to-MAP transactions processed by MD-IWF

**Peg Condition:** The transaction hold time begins when a Diam-to-MAP Pending Transaction Record (PTR) is allocated and ends when the PTR is deallocated. This measurement is pegged when the PTR is deallocated.

**Collection Interval:** 5 min

**Measurement Scope:** Site

**Recovery:**

No action required

### RxMdIwfMapTcBegin

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of TCAP Begin requests received.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a TCAP Begin message from the SS7 network.

**Measurement Scope:** Site

**Recovery:**

No action required

## EvMdlwfTransSuccessByDiamExtNode

**Measurement Group:** MD-IWF Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of transactions where Diameter external node sends success (2xxx) Answer to DSR, and MD-IWF sends success response to SS7

**Peg Condition:** This measurement is pegged when a Diameter external node sends a success (2xxx) Answer to DSR, which is then forwarded by DM-IWF (on DA-MP) to MD-IWF (on SS7-MP), and MD-IWF in turn sends a success response (not an Abort or Reject) to the SS7 network.

**Collection Interval:** 5 min

**Measurement Scope:** Site

**Recovery:**

No action required

## MD-IWF SS7 Performance measurements

The MD-IWF SS7 Performance measurement report contains measurements providing performance that is specific to the MAP-Diameter IWF Application running on a SS7-MP.

**Table 52: MD-IWF SS7 Performance Measurements**

Measurement Tag	Description	Collection Interval
RxMdlwfMapRequestMsgByOpcode	Number of MAP request messages with Op Code "X" received from SS7 network	5 min
RxMdlwfMapResponseMsgByOpcode	Number of MAP response messages with Op Code "X" received from SS7 network	5 min

Measurement Tag	Description	Collection Interval
TxMdIwfMapRequestMsgByOpcode	Number of MAP request messages with Op Code "X" sent to SS7 network	5 min
TxMdIwfMapResponseMsgByOpcode	Number of MAP response messages with Op Code "X" sent to SS7 network	5 min

### RxMdIwfMapRequestMsgByOpcode

**Measurement Group:** MD-IWF SS7 Performance

**Measurement Dimension:** Arrayed (by MAP Op Code)

**Measurement Type:** Simple

**Measurement Description:** The number of MAP request messages with Op Code "X" received from SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a MAP request message from the SS7 network

**Measurement Scope:** Site

**Recovery:**

No action required.

### RxMdIwfMapResponseMsgByOpcode

**Measurement Group:** MD-IWF SS7 Performance

**Measurement Dimension:** Arrayed (by MAP Op Code)

**Measurement Type:** Simple

**Measurement Description:** The number of MAP response messages with Op Code "X" received from SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a MAP response message from the SS7 network

**Measurement Scope:** Site

**Recovery:**

No action required.

### TxMdIwfMapRequestMsgByOpcode

**Measurement Group:** MD-IWF SS7 Performance

**Measurement Dimension:** Arrayed (by MAP Op Code)

**Measurement Type:** Simple

**Measurement Description:** The number of MAP request messages with Op Code "X" sent to SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a MAP request message to the SS7 network.

**Measurement Scope:** Site

**Recovery:**

No action required.

### TxMdIwfMapResponseMsgByOpcode

**Measurement Group:** MD-IWF SS7 Performance

**Measurement Dimension:** Arrayed (by MAP Op Code)

**Measurement Type:** Simple

**Measurement Description:** The number of MAP response messages with Op Code "X" sent to SS7 network.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a MAP response message to 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 53: 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 Dimension:** Arrayed (by Diameter Command Code ID)

**Measurement Type:** Simple

**Measurement Description:** The number of Diameter Request messages with Command Code "X" received from DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter Request message from a DA-MP.

**Measurement Scope:** Site

**Recovery:**

No action required.

**RxMdIwfDiamAnswerMsgByCommandCode**

**Measurement Group:** MD-IWF Diam Performance

**Measurement Dimension:** Arrayed (by Diameter Command Code ID)

**Measurement Type:** Simple

**Measurement Description:** The number of Diameter Request messages with Command Code "X" received from DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF receives a Diameter Request message from a DA-MP.

**Measurement Scope:** Site

**Recovery:**

No action required.

**TxMdIwfDiamRequestMsgByCommandCode**

**Measurement Group:** MD-IWF Diam Performance

**Measurement Dimension:** Arrayed (by Diameter Command Code ID)

**Measurement Type:** Simple

**Measurement Description:** The number of Diameter Request messages with Command Code "X" sent to DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a Diameter Request message to a DA-MP.

**Measurement Scope:** Site

**Recovery:**

No action required.

## TxDiameterAnswerMsgByCommandCode

**Measurement Group:** MD-IWF Diam Performance

**Measurement Dimension:** Arrayed (by Diameter Command Code ID)

**Measurement Type:** Simple

**Measurement Description:** The number of Diameter Answer messages with Command Code "X" sent to DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** Each time MD-IWF sends a Diameter Answer message to a DA-MP.

**Measurement Scope:** Site

**Recovery:**

No action required.

## Message Copy measurements

The Diameter Application Server (DAS) measurements reflect the Message Copy performance. These measurements allow the user to monitor the amount of traffic being copied and the percentage of times that messages were successfully (or unsuccessfully) copied. Measurements such as the following are included in this group:

- Number of messages being copied
- Number of errors in transmitting those copies (i.e., retransmits)
- Number of times a copy transaction failed
- Tx and Message Copy queue utilization

**Table 54: 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

Measurement Tag	Description	Collection Interval
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
DASCopyTx	Total number of DAS Copies forwarded.	5 min
DASCopyValidAnswer	Total number of DAS Copy transactions completed (a Copy Pending Transaction has been paired with a qualified Answer from the DAS peer).	5 min
TxMsgCopyQueueAve	Average Message Copy Queue utilization (0-100%) measured during the collection interval.	5 min
TxMsgCopyQueueFullDiscard	Total number of DAS Request messages discarded because the Message Copy queue was full.	5 min
TxMsgCopyQueuePeak	Peak Message Copy Queue utilization (0-100%) measured during the collection interval.	5 min

## DASCopyAnswerRx

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of DAS Copy Answers received.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time an Answer response is received from a DAS peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

This measurement is an indication of the Message Copy response traffic load being processed by the MP.

### DASCopyDiscarded

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of Message Copy failures because of any error (no Answer received, the result code in the Answer didn't match provisioning).

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time a DAS Copy fails for any reason. Some failure reasons include (but are not limited to): no answer from peer, Application ID not supported at the peer, result code in the Answer incorrect/doesn't match provisioning.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify proper routing to the intended DAS peer is configured and in service (route list is properly configured), Diameter application is selecting intended route list.
2. Verify intended DAS peer is properly configured to receive the intended traffic and traffic load.
3. Verify no network issues exist between the MP and intended DAS peer.
4. Contact [My Oracle Support \(MOS\)](#) for assistance.

### DASCopyFailureMCCSNotProvisioned

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total amount of DAS Copy failures due to the copied message not finding a provisioned MCCS.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time the Copy Pending Transaction is discarded because the original message does not contain a valid MCCS, thus causing the copy action to fail.

**Measurement Scope:** Server Group

**Recovery:**



1. Verify the MCCA configured with the trigger points and ensure proper provisioning.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## DASCopyFailureMPCong

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of DAS Copy Failures because the MP was congested.

**Collection Interval:** 5 min

**Peg Condition:** When the MP declares congestion (declared CL1-CL3), the Message Copy function is disabled. Original messages marked for copy and held as a Pending Transactions are not copied and increment this measurement. If the Copy has been sent to the DAS peer, the Copy transaction will be allowed to complete. If the Copy transaction fails, another measurement will be incremented.

Either the MP is receiving traffic in excess of its rated capacity or the intended DAS peer is not responding in a timely fashion.

**Measurement Scope:** Server Group

**Recovery:**

1. Reduce traffic being received by the MP.
2. Verify there are no network issues between the MP and the intended DAS peer.
3. Ensure the intended DAS peer has sufficient capacity to process the traffic being directed to it by the MP
4. Contact [My Oracle Support \(MOS\)](#) for assistance.

## DASCopyFailurePeerAppIdUnsup

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total amount of DAS Copy Failures because the Diameter Application Layer has specified a route list with no peer for the application ID in the message.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time the Copy Pending Transaction is discarded because a Diameter Request has been marked for copy by the application, but no connection in the provided Route List supports the Application ID in the request, causing the copy action to fail.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify the route list provisioning points to the intended DAS peer, and the intended DAS peer is responding with the desired Application ID.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## DASCopyFailureSizeExceeded

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total amount of DAS Copy failures due to the copied message size exceeding the maximum message size configured for the system.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time the Copy Pending Transaction is discarded because a the message being copied to the DAS exceeded the system set maximum message size, thus causing the copy action to fail.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify the maximum message size set system wide is sufficient for handling the messages being processed.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## DASCopyFailureRLNotProv

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of DAS Copy Failures because the route list is not provisioned.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time the Copy Pending Transaction fails because the indicated route list contained in the Diameter request does not match what has been provisioned as a system option or other provisioned route lists.

**Measurement Scope:** Server Group

**Recovery:**

1. Review local provisioning that connections to intended DAS peer server(s) are in service and that no network issues exist in the path(s) to intended DAS peer server(s).
2. Review DAS peer provisioning to insure proper configuration.
3. Contact [My Oracle Support \(MOS\)](#) for assistance.

## DASCopyRetransmits

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of DAS Copy retransmits.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time any Copied Message is retransmitted to a DAS peer because a qualified Diameter Answer response has not been received within the Pending Answer Timer's timeout value to complete the pending transaction.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify proper routing to the intended DAS peer is configured and in service (route list is properly configured), Diameter application is selecting intended route list.
2. Verify intended DAS peer is properly configured to receive the intended traffic and traffic load.
3. Verify no network issues exist between the MP and intended DAS peer.
4. Contact [My Oracle Support \(MOS\)](#) for assistance.

## DASCopyRetransmitsExceeded

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of times the DAS Copy retransmits exceeded the configured max number of retransmits.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time a Copy Pending Transaction is discarded because the Copied Request has been retransmitted the configured number of times without receiving an Answer response from the DAS peer.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify proper routing to the intended DAS peer is configured and in service (route list is properly configured), Diameter application is selecting intended route list.
2. Verify intended DAS peer is properly configured to receive the intended traffic and traffic load.
3. Verify no network issues exist between the MP and intended DAS peer.
4. Contact [My Oracle Support \(MOS\)](#) for assistance.

## DASCopyTx

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of DAS Copies forwarded.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time a Message Copy is transmitted to a DAS peer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

This measurement is an indication of the Message Copy traffic load being processed by the MP.

### DASCopyValidAnswer

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total number of DAS Copy transactions completed (a Copy Pending Transaction has been paired with a qualified Answer from the DAS peer).

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time a Copy Pending Transaction is completed because a Diameter Copy Pending Transaction has been paired with a qualified Answer received from a DAS peer, completing the transaction.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify proper routing to the intended DAS peer is selected and in service.
2. desired answer result code is provisioned in the **Diameter > System Options**.
3. desired DAS peer is configured to return the answer result code provisioned in the **Diameter > System Options**.
4. Contact [My Oracle Support \(MOS\)](#) for assistance.

### TxMsgCopyQueueAve

**Measurement Group:** DAS

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Message Copy Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is pegged when a new Message Copy SysMetric sample is collected, then divided by the number of samples collected in the collection period.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

This is a diagnostic indicator of the amount of traffic load being processed by the Message Copy feature.

### **TxMsgCopyQueueFullDiscard**

**Measurement Group:** DAS

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of DAS Request messages discarded because the Message Copy queue was full.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented each time a DAS Request is discarded because the Message Copy Tx queue was full, thus preventing a new DAS Request from being queued for transmit.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

This is a diagnostic indicator of the amount of traffic load being processed by the Message Copy feature.

### **TxMsgCopyQueuePeak**

**Measurement Group:** DAS

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Message Copy Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is pegged when a new Message Copy SysMetric sample is collected and the sample exceeds the previously saved peak for the collection period. When a new collection period is begun, the peak is reset to 0.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

This is a diagnostic indicator of the amount of traffic load being processed by the Message Copy feature.

## Message Priority measurements

The Message Priority measurement group contains measurements that provide information on message priority assigned to ingress Diameter messages. Measurements such as these are included in this group.

- Totals for the number of Request messages set to priority “X” when received from a peer.
- Totals for the number of Request messages set to priority “X” as a result of PRT processing.

**Table 55: Message Priority Measurement Report Fields**

Measurement Tag	Description	Collection Interval
EvConnPeerUnsuppMp	The number of times an ingress Request was received on a connection configured to read message priority from the ingress message, and the peer did not support the UCMP feature.  <b>Note:</b> In this case, DSR assigns the default priority of 0 to all such requests.	5 min
EvConnUnexpMp	The number of times an ingress Request message was received with a priority of “3”, when the peer supports UCMP feature.	5 min
RxMsgPri0ApplRule	Number of Request messages set to priority “0” as a result of ART processing	5 min
RxMsgPri0Ingress	Total number of ingress messages assigned message priority 0.	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
RxMsgPri1Ingress	Total number of ingress messages assigned message priority 1.	5 min
RxMsgPri1PeerRule	Number of Request messages set to priority “1” as a result of PRT processing.	5 min

Measurement Tag	Description	Collection Interval
RxMsgPri2ApplRule	Number of Request messages set to priority "2" as a result of ART processing	5 min
RxMsgPri2Ingress	Total number of ingress messages assigned message priority 2.	5 min
RxMsgPri2PeerRule	Number of Request messages set to priority "2" as a result of PRT processing.	5 min

## EvConnPeerUnsuppMp

**Measurement Group:** Message Priority

**Measurement Type:** Simple

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

**Description:** The number of times an ingress Request was received on a connection configured to read message priority from the ingress message, and the peer did not support the UCMP feature.

**Note:** In this case, DSR assigns the default priority of 0 to all such requests.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a connection is configured to read message priority from ingress message and the peer does not support UCMP feature.

**Measurement Scope:** Server Group

**Recovery:**

1. Verify that the peer is a DSR
  - Product-Name is reported as "Eagle XG DSR", in the Event Additional Information.
  - Vendor-Id is reported as 323 (Tekelec).
2. Verify that the Firmware-Revision reported in the Event Additional Information represents a DSR software version that supports the Message Priority Feature.
  - Call [My Oracle Support \(MOS\)](#) and obtain the minimum DSR software version that supports Message Priority and compare with this information.
  - If the reported Firmware-Version is greater than or equal to the minimum required DSR software version, call [My Oracle Support \(MOS\)](#).
  - If the reported Firmware-Version is less than the minimum required DSR software version, call [My Oracle Support \(MOS\)](#) to seek advice on whether the peer DSR needs to be upgraded, or whether the Message Priority Setting for this Transport Connection or Peer Node needs to be changed to "None".

## EvConnUnexpMp

**Measurement Group:** Message Priority

**Measurement Type:** Simple

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

**Description:** The number of times an ingress Request message was received with a priority of "3", when the peer supports UCMP feature.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when a peer supports UCMP feature and an ingress Request message was received with a priority of "3".

**Measurement Scope:** Server Group

**Recovery:**

1. Verify that the peer is a DSR
  - Product-Name is reported as "Eagle XG DSR", in the Event Additional Information.
  - Vendor-Id is reported as 323 (Tekelec).
2. Verify that the Firmware-Version reported in the Event Additional Information represents a DSR software version that supports the Message Priority Feature.
  - Call *My Oracle Support (MOS)* and obtain the minimum DSR software version that supports Message Priority and compare with this information.
  - If the reported Firmware-Version is greater than or equal to the minimum required DSR software version, call *My Oracle Support (MOS)*.
  - If the reported Firmware-Version is less than the minimum required DSR software version, call *My Oracle Support (MOS)* to seek advice on whether the peer DSR needs to be upgraded, or whether the Message Priority Setting for this Transport Connection or Peer Node needs to be changed to "None".

## RxMsgPri0ApplRule

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages set to priority "0" as a result of ART processing

**Collection Interval:** 5 min

**Peg Condition:** Each time DRL selects an application routing rule for routing a Request message, the rule action is set to "Route to Application", and a Message Priority of "0" is assigned to the application routing rule

**Measurement Scope:** Server Group

**Recovery:**

No action required.



## RxMpMsgPri0

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of ingress messages assigned message priority 0.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when an ingress message is assigned a priority of 0.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## RxMsgPri0PeerRule

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages set to priority "0" as a result of PRT processing.

**Collection Interval:** 5 min

**Peg Condition:** Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to "Route to Peer", and a Message Priority of "0" is assigned to the peer routing rule.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## RxMsgPri1ApplRule

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages set to priority "1" as a result of ART processing

**Collection Interval:** 5 min

**Peg Condition:** Each time DRL selects an application routing rule for routing a Request message, the rule action is set to "Route to Application", and a Message Priority of "1" is assigned to the application routing rule

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxMpMsgPri1

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of ingress messages assigned message priority 1.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when an ingress message is assigned a priority of 1.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxMsgPri1PeerRule

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages set to priority "1" as a result of PRT processing.

**Collection Interval:** 5 min

**Peg Condition:** Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to "Route to Peer", and a Message Priority of "1" is assigned to the peer routing rule.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

### RxMsgPri2ApplRule

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages set to priority "2" as a result of ART processing

**Collection Interval:** 5 min

**Peg Condition:** Each time DRL selects an application routing rule for routing a Request message, the rule action is set to "Route to Application", and a Message Priority of "2" is assigned to the application routing rule

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxMpMsgPri2

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total number of ingress messages assigned message priority 2.

**Collection Interval:** 5 min

**Peg Condition:** Pegged when an ingress message is assigned a priority of 2.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## RxMsgPri2PeerRule

**Measurement Group:** Message Priority

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Request messages set to priority “2” as a result of PRT processing.

**Collection Interval:** 5 min

**Peg Condition:** Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to “Route to Peer”, and a Message Priority of “2” is assigned to the peer routing rule.

**Measurement Scope:** Server Group

**Recovery:**

No action necessary.

## Message Processor (MP) Performance measurements

The MP Performance measurement report contains measurements that provide performance information for an MP server.

Table 56: MP Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
EvDiameterProcessAvg	The average Diameter process CPU utilization (0-100%) measured during the collection interval. The Diameter process is responsible for all Diameter-related processing.	5 min
EvDiameterProcessPeak	The peak Diameter process CPU utilization (0-100%) measured during the collection interval. The Diameter process is responsible for all Diameter-related processing.	5 min
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
EvMemoryCongestionLevel1Entered	The number of times that the DA-MP entered memory congestion level 1.	5 min
EvMemoryCongestionLevel2Entered	The number of times that the DA-MP entered memory congestion level 2.	5 min
EvMemoryCongestionLevel3Entered	The number of times that the DA-MP entered memory congestion level 3.	5 min
EvMpCongestionEntered	Number of times that the MP became congested (regardless of severity level).	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
EvMpDangerOfCongestionEntered	The number of times that the local DA-MP entered danger of CPU congestion.	5 min

Measurement Tag	Description	Collection Interval
EvPduPoolAvg	The average Diameter PDU Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
EvPduPoolPeak	The peak Diameter PDU Buffer Pool utilization (0-100%) measured during the collection interval.	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
EvStasisModeMaxConnections	The number of times DA-MP requested IPFE to cease distributing Diameter connections to the DA-MP due to the maximum number of connections on the DA-MP.	5 min
EvStasisModeMpCongestion	The number of times DA-MP requested IPFE to cease distributing Diameter connections to the DA-MP due to MP Congestion.	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
RxMsgRateAvgMp	The average MP ingress message rate (in messages per second) measured during the collection interval. The ingress message rate is the number of ingress Diameter messages that are targeted for Relay Agent routing (non-zero application ID).	5 min
RxMsgRatePeakMp	The peak Ingress message rate (in messages per second) measured during the collection interval. The ingress message rate is the number of ingress Diameter messages that are targeted for Relay Agent routing (non-zero application ID).	5 min
RxRequestMsgQueueAvg	The average Request Message Queue utilization (0-100%) measured during the collection interval.	5 min

Measurement Tag	Description	Collection Interval
RxRequestMsgQueuePeak	The peak Request Message Queue utilization (0-100%) measured during the collection interval.	5 min
TmAnswerTimeAvg	Average time (in microseconds) to process an Answer message. This is the time from when a Diameter Answer message is read from the ingress peer's SCTP/TCP socket until it is sent to the egress peer's SCTP/TCP socket.	5 min
TmAnswerTimePeak	Peak time (in microseconds) to process an Answer message. This is the time from when a Diameter Answer message is read from the ingress peer's SCTP/TCP socket until it is sent to the egress peer's SCTP/TCP socket.	5 min
TmMemoryCongestionLevel1	The total time (in milliseconds) the local DA-MP was in memory congestion level 1. This will appear as an aggregate value retrieved from all DA-MPs in a Network Element.	5 min
TmMemoryCongestionLevel2	The total time (in milliseconds) the local DA-MP was in memory congestion level 2. This will appear as an aggregate value retrieved from all DA-MPs in a Network Element.	5 min
TmMemoryCongestionLevel3	The total time (in milliseconds) the local DA-MP was in memory congestion level 3. This will appear as an aggregate value retrieved from all DA-MPs in a Network Element.	5 min
TmMpCongestion	The total time (in milliseconds) the local DA-MP was in CPU congestion. This value will appear as an aggregate value retrieved from all DA-MPs in a Network Element.	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	5 min

Measurement Tag	Description	Collection Interval
	aggregate value retrieved from all DA-MPs in a Network Element.	
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
TmMpDangerOfCongestion	The total time (in milliseconds) the local DA-MP was in danger of CPU congestion. This will appear as an aggregate value retrieved from all DA-MPs for OAM Network Element.	5 min
TmRequestTimeAvg	Average time (in microseconds) to process a Request message. This is the time from when a Diameter Request message is read from the ingress peer's SCTP/TCP socket until it is sent to the egress peer's SCTP/TCP socket.	5 min
TmRequestTimePeak	Peak time (in microseconds) to process a Request message. This is the time from when a Diameter Request message is read from the ingress peer's SCTP/TCP socket until it is sent to the egress peer's SCTP/TCP socket.	5 min
TxAllConnQueueAvg	The average All-Connections Event Queue utilization (0-100%) measured during the collection interval.	5 min
TxAllConnQueuePeak	The peak All-Connections Event Queue utilization (0-100%) measured during the collection interval.	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

## EvDiameterProcessAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Diameter Process CPU utilization (0-100%) measured during the collection interval. The Diameter process is responsible for all Diameter-related processing.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Diameter process CPU utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvDiameterProcessPeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Diameter process CPU utilization (0-100%) measured during the collection interval. The Diameter process is responsible for all Diameter-related processing.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Diameter process CPU utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvLongTimeoutPtrPoolAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average



**Measurement Dimension:** Single

**Description:** The average Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Diameter Long Timeout PTR Buffer Pool utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP, then a Diameter problem may exist that is causing excessive Long Timeout traffic to be delivered to the MP. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvLongTimeoutPtrPoolPeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Diameter Long Timeout PTR Buffer Pool utilization (0-100%) measured during the collection interval.

A Long Timeout PTR is allocated for each Request message with a Pending Answer Timer value greater than 10 seconds that is forwarded to an upstream peer and is de-allocated when an Answer response is received and routed to a downstream peer. This measurement is useful for evaluating whether excessive traffic levels are being assigned to the Long Timeout pool. Assignment of traffic to this pool should be limited to Requests that are expected to have long response times.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Diameter Long Timeout PTR Buffer Pool utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP, then a Diameter problem may exist that is causing excessive Long Timeout traffic to be delivered to the MP. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvMemoryCongestionLevel1Entered

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the DA-MP entered memory congestion level 1.

**Collection Interval:** 5 min

**Peg Condition:** Each time any of these conditions occur:

- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" to asserted with severity "Minor."
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from asserted with severity "Major" to asserted with severity "Minor."
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from asserted with severity "Critical" to asserted with severity "Minor."

When the "time interval" completes, the time measured is added to the measurement value.

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 \(MOS\)](#).

## EvMemoryCongestionLevel2Entered

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the DA-MP entered memory congestion level 2.

**Collection Interval:** 5 min

**Peg Condition:** Each time one of these conditions occur:

- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" to asserted with severity "Major."

- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from asserted with severity "Minor" to asserted with severity "Major."
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from asserted with severity "Critical" to asserted with severity "Major."

When the "time interval" completes, the time measured is added to the measurement value.

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 \(MOS\)](#).

## EvMemoryCongestionLevel3Entered

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the DA-MP entered memory congestion level 3.

**Collection Interval:** 5 min

**Peg Condition:** Each time one of these conditions occur:

- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" to asserted with severity "Critical."
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from asserted with severity "Minor" to asserted with severity "Critical."
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from asserted with severity "Critical" to asserted with severity "Critical."

When the "time interval" completes, the time measured is added to the measurement value.

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 \(MOS\)](#).

## EvMpCongestionEntered

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the DA-MP became congested (regardless of severity level).

**Collection Interval:** 5 min

**Peg Condition:** Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from cleared to asserted with severity CL1.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The Diameter process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvMpCongestionLevel1Entered

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the local DA-MP entered CPU congestion level 1.

**Collection Interval:** 5 min

**Peg Condition:** Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" or asserted with severity "Info" to asserted with severity "Minor".

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

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the local DA-MP entered CPU congestion level 2.

**Collection Interval:** 5 min

**Peg Condition:** Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" or asserted with severity "Info" or "Minor" to asserted with severity "Major".

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

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the local DA-MP entered CPU congestion level 3.

**Collection Interval:** 5 min

**Peg Condition:** Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" or asserted with severity "Info", "Minor", or "Major" to asserted with severity "Critical".

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 \(MOS\)](#).

## EvMpDangerOfCongestionEntered

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times that the local DA-MP entered danger of CPU congestion.

**Collection Interval:** 5 min

**Peg Condition:** Each time Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) transitions from "cleared" to asserted with severity "Info".

**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 \(MOS\)](#).

## EvPduPoolAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Diameter PDU Buffer Pool utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Diameter PDU Buffer Pool utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the ingress message rate and/or Diameter process CPU utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvPduPoolPeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Diameter PDU Buffer Pool utilization (0-100%) measured during the collection interval.

A PDU is allocated to each 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 to match 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 Diameter queues.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Diameter PDU Buffer Pool utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**



1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the ingress message rate and/or Diameter process CPU utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### EvPtrListAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Diameter PTR Buffer Pool utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the ingress message rate and/or Diameter process CPU utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### EvPtrListPeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Diameter PTR Buffer Pool utilization (0-100%) measured during the collection interval.

A PTR is allocated for each Request message that is forwarded to an upstream peer and is de-allocated when an Answer response is received and routed to a downstream peer. This measurement is useful for evaluating whether persistent network or upstream server problems exist. In general, PTR buffers



are engineered to match the processing capacity of the MP. If network or upstream server problems exist, delaying pending transactions in the MP, then PTRs (and associated messages/PDUs) will sit in internal Diameter queues.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Diameter PTR Buffer Pool utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the ingress message rate and/or Diameter process CPU utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or Diameter) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvStasisModeMaxConnsExceeded

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times DA-MP requested IPFE to cease distributing Diameter connections to the DA-MP due to maximum number of connections on the DA-MP.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented when the A DA-MP is sending IPFE a “heartbeat” message and it has determined that the number of Diameter connections established has reached the maximum number supported by the DA-MP since the last “heartbeat” message was sent. A DA-MP will send a “heartbeat” message indicating a STASIS availability status when it has reached its maximum number of active Diameter connections.

**Measurement Scope:** Server Group

**Recovery:**

1. If the DA-MP is a member of a IPFE TS, verify that the IPFE is configured to fully monitor the DA-MP’s availability status.  
  
When a IPFE fully monitors application servers in a IPFE TS, it will cease from distributing new Diameter connections to any/all application servers that report a “Stasis” availability status.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## EvStasisModeMpCongestion

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The DA-MP is in MP Congestion due to high traffic rates. The number of times DA-MP requested IPFE to cease distributing Diameter connections to the DA-MP due to MP Congestion.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented when the A DA-MP is sending IPFE a “heartbeat” message and it has been determined that its Congestion Level has transitions from CL0 (No Congestion) since the last heartbeat message sent. A DA-MP will send a “heartbeat” message indicating STASIS availability status when it’s Congestion Level is greater than CL0.

**Measurement Scope:** Server Group

**Recovery:**

1. The traffic rate needs to be decreased.
2. Contact [My Oracle Support \(MOS\)](#) for assistance.

## RxAnswerMsgQueueAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Answer Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Answer Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxAnswerMsgQueuePeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Answer Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Answer Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxMsgRateAvgMp

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average MP ingress message rate (in messages per second) measured during the collection interval. The ingress message rate is the number of ingress Diameter messages that are targeted for Relay Agent routing (non-zero Application ID).

**Collection Interval:** 5 min

**Peg Condition:** The average of all MP ingress message rate samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### RxMsgRatePeakMp

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak ingress message rate (in messages per second) measured during the collection interval. The ingress message rate is the number of ingress Diameter messages that are targeted for Relay Agent routing (non-zero Application ID).

**Collection Interval:** 5 min

**Peg Condition:** The maximum ingress message rate (messages per second) sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxRequestMsgQueueAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Request Message Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxRequestMsgQueuePeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Request Message Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Request Message Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmAnswerTimeAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average time (in milliseconds) to process an Answer message. This is the time from when a Diameter Answer message is read from the ingress peer's SCTP/TCP socket until it is sent to the egress peer's SCTP/TCP socket.

**Note:** This is the average cross-MP delay for answers during the measurement period excluding ethernet/IP stack ingress and egress processing time.

**Collection Interval:** 5 min

**Peg Condition:** Timing started when an ingress Answer message is read from the connection socket. Timing stopped when the matching egress Answer message is written to the connection socket. The difference between the two times is used to update the average.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement indicates an excessive average cross-MP delay, examine the DIAM KPIs to determine if the system is under excessive load.
2. Examine the Peer Routing Rules to determine if there are an excessive number of rules.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmAnswerTimePeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak time (in milliseconds) to process an Answer message. This is the time from when a Diameter Answer message is read from the ingress peer's SCTP/TCP socket until it is sent to the egress peer's SCTP/TCP socket.

**Note:** This is the peak cross-MP delay for answers during the measurement period excluding ethernet/IP stack ingress and egress processing time.

**Collection Interval:** 5 min

**Peg Condition:** Timing started when an ingress Answer message is read from the connection socket. Timing stopped when the matching egress Answer message is written to the connection socket. This measurement is pegged if the difference is larger than the current value of the measurement.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TmMemoryCongestionLevel1

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total time (in milliseconds) the local DA-MP was in memory congestion level 1. This 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 these conditions occur:

- A new "collection interval" for the measurement begins and Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Minor".
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity "Minor" (onset of DA-MP memory congestion level 1).

The "time interval" stops when one of these conditions occur:

- The "collection interval" for the measurement ends and Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Minor".

- 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is no longer asserted with severity "Minor" (abatement of DA-MP memory congestion level 1).

When the "time interval" completes, the time measured is added to the measurement value.

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 average transaction hold time is exceeding its configured limits, resulting in an abnormally large number of outstanding transactions. Reduce the average hold time by examining the configured Pending Answer Timer values and reducing any values that are unnecessarily large.
3. The size of the average message processed by DSR is exceeding its configured limits. This may cause DSR to consume an abnormally large amount of memory, leading to performance degradation. Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) may be raised as a result. Examine the traffic coming from connected peers to see if any of them are sending abnormally large messages.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TmMemoryCongestionLevel2

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total time (in milliseconds) the local DA-MP was in memory congestion level 2. This 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 these conditions occur:

- A new "collection interval" for the measurement begins and Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Major".
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity "Major" (onset of DA-MP memory congestion level 2).

The "time interval" stops when one of these conditions occur:

- The "collection interval" for the measurement ends and Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Major".
- 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is no longer asserted with severity "Major" (abatement of DA-MP memory congestion level 2).

When the "time interval" completes, the time measured is added to the measurement value.

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 average transaction hold time is exceeding its configured limits, resulting in an abnormally large number of outstanding transactions. Reduce the average hold time by examining the configured Pending Answer Timer values and reducing any values that are unnecessarily large.
3. The size of the average message processed by DSR is exceeding its configured limits. This may cause DSR to consume an abnormally large amount of memory, leading to performance degradation. Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) may be raised as a result. Examine the traffic coming from connected peers to see if any of them are sending abnormally large messages.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

### TmMemoryCongestionLevel3

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total time (in milliseconds) the local DA-MP was in memory congestion level 3. This 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 these conditions occur:

- A new "collection interval" for the measurement begins and Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Critical".
- Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity "Critical" (onset of DA-MP memory congestion level 3).

The "time interval" stops when one of these conditions occur:

- The "collection interval" for the measurement ends and Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is already asserted with severity "Critical".
- 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is no longer asserted with severity "Critical" (abatement of DA-MP memory congestion level 3).

When the "time interval" completes, the time measured is added to the measurement value.

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 average transaction hold time is exceeding its configured limits, resulting in an abnormally large number of outstanding transactions. Reduce the average hold time by examining the configured Pending Answer Timer values and reducing any values that are unnecessarily large.



3. The size of the average message processed by DSR is exceeding its configured limits. This may cause DSR to consume an abnormally large amount of memory, leading to performance degradation. Alarm 22223 - DA-MP Memory Utilization Limit Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) may be raised as a result. Examine the traffic coming from connected peers to see if any of them are sending abnormally large messages.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TmMpCongestion

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Total time (in milliseconds) the local DA-MP was in CPU congestion. 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 duration interval starts when one of the following conditions occurs:

1. 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 asserted (regardless of severity level).
2. Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity Minor (local MP congestion level CL0 to CL1 transition).

The time duration interval stops when one of the following conditions occurs:

1. 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 asserted (regardless of severity level).
2. Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is cleared (local MP congestion level CL1 to CL0 transition).

When a time duration interval completes, the time measured is added to the total measurement value.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. DA-MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. Each DA-MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each DA-MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. The Diameter Process may be experiencing problems. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## 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.

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.

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.

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 \(MOS\)](#).

**TmMpDangerOfCongestion**

**Measurement Group:** MP Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The total time (in milliseconds) the local DA-MP was in danger of CPU congestion. This 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 occurs:

- 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 "Info".

- Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted with severity “Info” (onset of local DA-MP danger of CPU congestion).

The “time interval” stops when one of the following conditions occurs:

- 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 “Info”.
- Alarm 22200 - Local MP Congestion (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is cleared (abatement of local DA-MP danger of CPU congestion).

When the “time interval” completes, the time measured is added to the measurement value.

**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 \(MOS\)](#).

## TmRequestTimeAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average time (in milliseconds) to process a Request message. This is the time from when a Diameter Request message is read from the ingress peer’s SCTP/TCP socket until it is sent to the egress peer’s SCTP/TCP socket.

**Note:** This is the average cross-MP delay for Requests during the measurement period excluding ethernet/IP stack ingress and egress processing time.

**Collection Interval:** 5 min

**Peg Condition:** Timing started when an ingress message is read from the connection socket. Timing stopped when the matching egress message is written to the connection socket. The difference between the two times is used to update the average.

**Measurement Scope:** Server Group

**Recovery:**

1. If this measurement indicates an excessive average cross-MP delay, examine the DIAM KPIs to determine if the system is under excessive load.

2. Examine the Peer Routing Rules to determine if there are an excessive number of rules.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmRequestTimePeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak time (in milliseconds) to process a Request message. This is the time from when a Diameter Request message is read from the ingress peer's SCTP/TCP socket until it is sent to the egress peer's SCTP/TCP socket.

**Note:** This is the peak cross-MP delay for Requests during the measurement period excluding ethernet/IP stack ingress and egress processing time.

**Collection Interval:** 5 min

**Peg Condition:** Timing started when an ingress request message is read from the connection socket. Timing stopped when the matching egress request message is written to the connection socket. This measurement is pegged if the difference is larger than the current value of the measurement.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## TxAllConnQueueAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average All-Connections Event Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all All-Connections Event Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.

3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. If no additional congestion alarms are asserted, the DSR may be experiencing a problem preventing it from processing events from its All-Connections Event Queue. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxAllConnQueuePeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak All-Connections Event Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum of all All-Connections Event Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.
3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. If no additional congestion alarms are asserted, the DSR may be experiencing a problem preventing it from processing events from its All-Connections Event Queue. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxRerouteQueueAvg

**Measurement Group:** MP Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average Reroute Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min



**Peg Condition:** The average of all Reroute Queue utilization samples taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. An excessive amount of Request message rerouting may have been triggered by either connection failures or Answer timeouts. The status of connections should be examined from the **Diameter > Maintenance > Connections** page.
2. If no additional congestion alarms are asserted, the routing answer task may be experiencing a problem, preventing it from processing messages from its Reroute Queue. The alarm log should be examined using the **Alarms & Events** page.
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## TxRerouteQueuePeak

**Measurement Group:** MP Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak Reroute Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Reroute Queue utilization sample taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:**

1. An excessive amount of Request message rerouting may have been triggered by either connection failures or Answer timeouts. The status of connections should be examined from the **Diameter > Maintenance > Connections** page.
2. If no additional congestion alarms are asserted, the routing answer task may be experiencing a problem, preventing it from processing messages from its Reroute Queue. The alarm log should be examined using the **Alarms & Events** page.
3. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## OAM.ALARM measurements

Table 57: 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



Measurement Tag	Description	Collection Interval
Alarm.State	The alarm state.	5 minutes

## OAM.SYSTEM measurements

Table 58: OAM System measurements

Measurement Tag	Description	Collection Interval
System.CPU_UtilPct_Average	The average CPU usage from 0 to 100% (100% indicates that all cores are completely busy).	5 minutes
System.CPU_UtilPct_Peak	The peak CPU usage from 0 to 100% (100% indicates that all cores are completely busy).	5 minutes
System.Disk_UtilPct_Average	The average disk usage for the partition on which the COMCOL database resides.	5 minutes
System.Disk_UtilPct_Peak	The peak disk usage for the partition on which the COMCOL database resides.	5 minutes
System.RAM_UtilPct_Average	The average committed RAM usage as a percentage of the total physical RAM. This measurement is based on the Committed_AS measurement from Linux/proc/meminfo. This measurement can exceed 100% if the kernel has committed more resources than provided by physical RAM, in which case, swapping will occur.	5 minutes
System.RAM_UtilPct_Peak	The peak committed RAM usage as a percentage of the total physical RAM. This measurement is based on the Committed_AS measurement from Linux/proc/meminfo. This measurement can exceed 100% if the kernel has committed more resources than provided by physical RAM, in which case, swapping will occur.	5 minutes

Measurement Tag	Description	Collection Interval
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 59: 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

**Measurement Group:** OC-DRA Diameter Usage

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average OC-DRA Ingress Message Processing Rate

**Collection Interval:** 5 min

**Peg Condition:** The average of all OC-DRA Ingress Message Rate KPI samples taken during the collection interval.

**Measurement Scope:** All

**Recovery:**

1. Display and monitor the DSR Application message rate by selecting **Diameter > Maintenance > Applications**. Verify that the message rate is set as expected.

2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter > Status & Manage > KPIs**.  
If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxOcdraMsgRatePeak

**Measurement Group:** OC-DRA Diameter Usage

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak OC-DRA Ingress Message Processing Rate

**Collection Interval:** 5 min

**Peg Condition:** The maximum of all OC-DRA Ingress Message Rate KPI samples taken during the collection interval.

**Measurement Scope:** All

**Recovery:**

1. Display and monitor the DSR Application message rate by selecting **Diameter > Maintenance > Applications**. Verify that the message rate is set as expected.
2. Application Routing might be mis-configured and is sending too much traffic to the DSR Application. Verify the configuration by selecting **Diameter > Configuration > Application Routing Rules**.
3. There might be an insufficient number of MPs configured to handle the network load. Monitor the traffic rate of each MP by selecting **Diameter > Status & Manage > KPIs**.  
If MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
4. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxGyRoMsgsReceivedPerCmd

**Measurement Group:** OC-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, CCA-I/U/T/E, RAR, RAA, UNK-REQ, UNK-ANS and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application messages (including requests and answers) received by OC-DRA.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA received a Gy/Ro Diameter Credit Control Application message (i.e. CCR/CCA and RAR/RAA) for Online Charging message processing. This measurement is the summation of measurements [RxGyRoReqRelayedPerCmd](#) and [RxGyRoReqFailedToRelayPerCmd](#) for Diameter Requests. This measurement is the summation of measurements [RxGyRoReqRelayedPerCmd](#) and [RxGyRoAnsDiscardedDrlQueueFullPerCmd](#).

**Note:** Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be 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

**Measurement Dimension:** Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Answer messages successfully relayed by OC-DRA.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives a Gy/Ro Diameter Credit Control Application Answer message and successfully en-queues it onto DRL's Answer Queue for Answer message routing.

**Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".

**Measurement Scope:** All

**Recovery:**

No action required.

## RxGyRoAns2xxxFromPeerPerCmd

**Measurement Group:** OC-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Diameter Message Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA that received Answers from the peer with a 2xxx (Success) Result-Code value.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives an Answer from the peer with a successful Result-Code AVP (one containing a value in the range of 2000 – 2999).

**Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".

**Measurement Scope:** All

**Recovery:**

No action required.

## TmGyRoSessionDuration

**Measurement Group:** OC-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of normally terminated Gy/Ro session durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gy/Ro session record is removed, the appropriate histogram instance shall be incremented by 1.

**Note:** Binding-independent session records are stored only if session state applies to the session.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gy/Ro session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

**Note:** This measurement applies only to sessions for which session state is being maintained. Online Charging DRA does not maintain Gy/Ro session state unless Session State applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

## TmGyRoSessionRefresh

**Measurement Group:** OC-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of Gy/Ro session refresh durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gy/Ro session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gy/Ro sessions are refreshed during CCR-U and RAR processing.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gy/Ro session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the Gy/Ro interface is set too short, the session audit will remove the session prematurely, possibly causing signaling failures for subsequent in-session request processing needing topology hiding translations.

**Note:** This measurement applies only sessions for which session state is being maintained. Online Charging DRA does not maintain Gy/Ro session state unless Session State applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.

- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

## OC-DRA Diameter Exception measurements

The OC-DRA Diameter Exception measurement report contains measurements that provide performance information that is specific to the OC-DRA Diameter protocol.

**Table 60: 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 after encountering a failure and abandoning processing of Gy/Ro Diameter Credit Control Application Request messages.	5 min
TxGyRoAnsGenPerErrCode	Number of Gy/Ro Diameter Credit Control Application Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoCcrInitAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to INITIAL_REQUEST (CCR-I) that	5 min



Measurement Tag	Description	Collection Interval
	OC-DRA abandoned processing due to a failure and generated an Answer response.	
TxGyRoCcrUpdateAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to UPDATE_REQUEST (CCR-U) that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoCcrTermAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to TERMINATION_REQUEST (CCR-T) that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoCcrEventAnsGenPerErrCode	Number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to EVENT_REQUEST (CCR-E) that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoRarAnsGenPerErrCode	Number of Gy/Ro Re-Auth-Request (RAA) messages that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxGyRoUnkCmdAnsGenPerErrCode	Number of unsupported Diameter Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.	5 min
TxPcaAnsGenPerErrCode	Number of Diameter Request messages that PCA abandoned processing due to a failure and generated an Answer response.	5 min
RxPcaAnsRelayedUnsupportedAppId	Number of Diameter Answer messages relayed by PCA containing an Auth-Application-Id AVP value that is not supported.	5 min
RxOcdraReqNoCcRequestType	Number of Gy/Ro Credit-Control-Request messages received by OC-DRA that did not contain the CC-Request-Type AVP.	5 min

Measurement Tag	Description	Collection Interval
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
RxGyRoCcrInitNoDestHostMultOcsPoolsMode	Number of Gy/Ro CCR-I messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.	5 min
RxGyRoCcrEventNoDestHostMultOcsPoolsMode	Number of Gy/Ro CCR-E messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.	5 min
RxGyRoInSessionReqNoDestHost	Number of in-session Gy/Ro Diameter Credit Control Application Request messages received by OC-DRA without a Destination-Host.	5 min
RxOcdraSessionUnkToPeer	Number of Gy/Ro Diameter Answer messages received by OC-DRA from the peer with a Result-Code value 5002 (DIAMETER_UNKNOWN_SESSION_ID).	5 min
RxOcdraAnsweringOcsNotConfigured	Number of answering OCS servers not configured locally.	5 min

## RxPcaTransactionsRejected

**Measurement Group:** P-DRA Diameter Exception, OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of transactions rejected by Policy and Charging DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Policy and Charging Application (PCA) initiates an Answer response with a non-successful Result-Code (one containing a non-2xxx value) or discards an ingress Request message for any of the following reasons:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Request discarded during Congestion
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

**Note:** This measurement is only pegged once for an ingress Request message.

**Measurement Scope:** Server Group

**Recovery:**

1. This measurement gives an indication if any Gy/Ro Diameter Credit Control Application Request messages were NOT successfully relayed by OC-DRA. OC-DRA can fail to relay Gy/Ro Diameter Credit Control Application Request messages for various reasons as stated above for "Peg Condition".
2. This measurement is the summation of the following measurements which should be inspected within the same collection interval to further determine the specific cause of failure:
  - [\*TxGyRoAnsGenByOcdraPerCmd\*](#)
  - [\*TxGyRoAnsGenByDrlPerCmd\*](#)
  - [\*RxGyRoReqDiscardedCongestionPerCmd\*](#)

**Note:** Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be the exact sum of the measurements listed above.

## RxGyRoReqFailedToRelayPerCmd

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Request messages OC-DRA failed to relay.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Policy and Charging DSR Application (PCA) initiates an Answer response with a non-successful Result-Code (one containing a non-2xxx value) or discards an ingress Request message for any of the following reasons:

- OC-DRA functionality is Unavailable or Disabled
- Diameter Protocol Error Detected

- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Request discarded during Congestion
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing
- Diameter Routing Layer failed to relay the Diameter Request (e.g., an unavailable peer or invalid route specification)

**Note:** This measurement is only pegged once for an ingress Request message.

**Measurement Scope:** Server Group

**Recovery:**

1. This measurement gives an indication if any Gy/Ro Diameter Credit Control Application Request messages were NOT successfully relayed by OC-DRA. OC-DRA can fail to relay Gy/Ro Diameter Credit Control Application Request messages for various reasons as stated above for "Peg Condition".
2. This measurement is the summation of the following measurements which should be inspected within the same collection interval to further determine the specific cause of failure:
  - [\*TxGyRoAnsGenByOcdraPerCmd\*](#)
  - [\*TxGyRoAnsGenByDrlPerCmd\*](#)
  - [\*RxGyRoReqDiscardedCongestionPerCmd\*](#)

**Note:** Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be the exact sum of the measurements listed above.

### RxGyRoAnsNon2xxxFromPeerPerCmd

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Request messages successfully relayed by OC-DRA that received an Answer from the peer with a non-2xxx (Non-successful) Result-Code value.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives an Answer from the peer with a non-successful Result-Code AVP (one containing a value that is not in the range of 2000 – 2999).

**Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total".

**Measurement Scope:** All

**Recovery:**

No action required.

## RxGyRoAnsDiscardedDrlQueueFullPerCmd

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ, and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Answer messages discarded by OC-DRA due to DRL's Answer queue being full.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gy/Ro based Diameter Credit Control Application Answer message is discarded after OC-DRA failed to en-queue it on to DRL's Answer queue for routing due to it being full.

**Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total."

**Measurement Scope:** All

**Recovery:**

1. This measurement indicates that overall DA-MP congestion is occurring and the need for additional processing capacity at the PCA DA-MP.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or a Diameter peer and/or DNS routing mis-configuration problem may exist.
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxGyRoAnsGenByDrlPerCmd

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, UNK-REQ, and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Answer messages received by OC-DRA that were generated by DRL.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives a Gy/Ro Diameter Credit Control Application Request message that was generated by DRL as a result of encountering a routing failure or an operator instruction (e.g., PRT rule) which requires abandoning transaction routing and sending an Answer response.

**Note:** This measurement is pegged twice, once for the Diameter message command abbreviation and once for "Total."

**Measurement Scope:** All

**Recovery:**

No action required.

## TxGyRoAnsGenByOcdraPerCmd

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (i.e. CCR-I/U/T/E, RAR, UNK-REQ, and "Total")

**Description:** The number of Diameter Answer messages generated by OC-DRA after encountering a failure and abandoning processing of Gy/Ro Diameter Credit Control Application Request messages.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of a Gy/Ro Diameter Credit Control Application Request message due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

**Note:** This measurement is only pegged once for an ingress Request message.

**Measurement Scope:** All

**Recovery:**

This measurement gives an indication of OC-DRA abandoning the processing of Gy/Ro Diameter Credit Control Application Request messages and generating Answer responses due to the various reasons stated above for "Peg Condition". To determine the specific cause of failure, inspect [TxGyRoAnsGenPerErrCode](#) that is pegged in the same collection interval and follow its Customer Action.

## TxGyRoAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#) and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of Gy/Ro Diameter Credit Control Application request message due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

**Note:** This measurement is only pegged once for an ingress Request message.

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit Control Application Request messages are being received and rejected due to the various reasons stated 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 Credit Control Application Request messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## TxGyRoCcrInitAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#))

**Description:** The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to INITIAL\_REQUEST (CCR-I) that OC-DRA abandoned processing due to a failure and generated an Answer response.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to INITIAL\_REQUEST (CCR-I) due to a failure and generates an Answer response Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error

- Online Charging Session not found when required for routing

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to INITIATE\_REQUEST (CCR-I) are being received and rejected due to the various reasons stated above for “Peg Condition”. A Diameter Answer response including an Error-Message AVP is generated for each Diameter Request message that is rejected.
2. This measurement shows the distribution of Gy/Ro Diameter CCR-I messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## TxGyRoCcrUpdateAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#))

**Description:** The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to UPDATE\_REQUEST (CCR-U) that OC-DRA abandoned processing due to a failure and generated an Answer response.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to UPDATE\_REQUEST (CCR-U) due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to UPDATE\_REQUEST (CCR-U) are being received and rejected due to the various reasons stated 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-U messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined



in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## TxGyRoCcrTermAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#))

**Description:** The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to TERMINATION\_REQUEST (CCR-T) that OC-DRA abandoned processing due to a failure and generated an Answer response.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to TERMINATION\_REQUEST (CCR-T) due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to TERMINATION\_REQUEST (CCR-T) are being received and rejected due to the various reasons stated 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-U messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## TxGyRoCcrEventAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#))

**Description:** The number of Gy/Ro Credit-Control-Request messages with the CC-Request-Type AVP set to EVENT\_REQUEST (CCR-E) that OC-DRA abandoned processing due to a failure and generated an Answer response..

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to EVENT\_REQUEST (CCR-E) due to a failure and generates an Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages with the CC-Request-Type AVP set to EVENT\_REQUEST (CCR-E) are being received and rejected due to the various reasons stated 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-E messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## TxGyRoRarAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#))

**Description:** The number of Gy/Ro Re-Auth-Request (RAR) messages that OC-DRA abandoned processing due to a failure and generated an Answer response.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of a Gy/Ro Re-Auth-Request (RAR) message due to a failure and generates an Error Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full

- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

**Measurement Scope:** All

**Recovery:**

1. 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 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 RAR messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## TxGyRoUnkCmdAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#))

**Description:** The number of unsupported Diameter Request messages that OC-DRA abandoned processing due to a failure and generated an Answer response.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA abandons the processing of an unsupported Request message due to a failure and generates an Error Answer response. Processing failures include the following:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Message Routing failure due to DRL's Request Queue Full

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which an unknown Diameter Request messages are being received and rejected due to the various reasons stated 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 unknown Diameter messages that OC-DRA generated a Diameter Answer with error response across the range of 3-digit error codes defined in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## TxPcaAnsGenPerErrCode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by 3-digit error code defined in [Policy DRA Error Resolution Procedures](#) and "Total")

**Description:** The number of Diameter Request messages that PCA abandoned processing due to a failure and generated an Answer response.

**Collection Interval:** 5 min

**Peg Condition:** Each time PCA abandons the processing of a Request message due to a failure and generates an Error Answer response. Processing failures include the following:

- A PCA function is Unavailable or Disabled
- Diameter Protocol Error Detected

**Note:** This measurement is pegged twice, once for the 3-digit error code and once for "Total."

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Diameter Request messages are being received and rejected due to the various reasons stated 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 Diameter Request messages that PCA generated a Diameter Answer with error response across the range of 3-digit error codes defined in [Policy DRA Error Resolution Procedures](#) to determine the specific cause of failure and resolution using the 3-digit error codes.

## RxPcaAnsRelayedUnsupportedAppId

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Diameter Answer messages relayed by PCA containing an Application-Id AVP value that is not supported.

**Collection Interval:** 5 min

**Peg Condition:** Each time PCA receives a Diameter Answer message containing an Application-Id value that is not supported and forwards it to DRL for routing.

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which a Diameter Answer messages are being received containing an Auth-Application-Id AVP value that is not supported by the Policy and Charging DSR Application. Each Diameter Answer containing an unsupported Application-ID

is sent without modification to the downstream peer that initiated 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

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Gy/Ro Credit-Control-Request messages received by OC-DRA that did not contain the CC-Request-Type AVP.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives a Gy/Ro Credit-Control-Request message that does not contain the CC-Request-Type AVP.

**Measurement Scope:** All

**Recovery:**

This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages are being received containing no CC-Request-Type AVP. Each Diameter Request containing a missing CC-Request-Type AVP is rejected using “CCR-Type-AVP is missing from CCR message” error condition. This condition causes the generation of Event 22700 Protocol Error In Diameter Request. Refer to the *DSR Alarms and KPIs Reference* for details about Event 22700.

## RxOcdraUnsupportedCcRequestType

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Gy/Ro Credit-Control-Request/Answer messages received by OC-DRA that contained an unsupported CC-Request-Type AVP value.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives a Gy/Ro Credit-Control-Request/Answer message that contains an unsupported CC-Request-Type AVP value.

**Measurement Scope:** All

**Recovery:**

This measurement represents an exception condition in which Gy/Ro Diameter Credit-Control-Request messages are being received containing an invalid CC-Request-Type AVP value. Each Diameter Request containing an invalid CC-Request-Type AVP is rejected using “Invalid AVP value in request” error condition. This condition causes the generation of Event 22700 Protocol Error In Diameter Request. Refer to the *DSR Alarms and KPIs Reference* for details about Event 22700.

## RxOcdraStackEventDiscardedCaFailure

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of stack events discarded by ComAgent due to ComAgent failures.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA sends a stack event and it is discarded due to a ComAgent failure as indicated by the returned ComAgent Error Response Stack error code

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which ComAgent Error Response Stack events are being received indicating that ComAgent has experienced communication failure when OC-DRA sends Policy and Charging SBR Request stack events to the Session SBR. Each Policy and Charging SBR Request stack event is discarded.
2. This condition also causes Event 22704 Communication Agent Error to be generated indicating the error code of the received ComAgent Error Response Stack event. Refer to the *DSR Alarms and KPIs Reference* for details about Event 22700.
3. The following ComAgent measurements should be inspected within the same collection interval to further determine the specific reason for the stack event being discarded:
  - [CAHSTxDscrdCongSR](#)
  - [CAHSTxDscrdUnkwnRsrc](#)
  - [CAHSTxDscrdIntErrSR](#)

Refer to the Recovery steps for any/all of these measurements that were pegged in the same collection interval.

4. Check Alarm 19832 ComAgent Reliable Transaction Failed in the *DSR Alarms and KPIs Reference*, as well as measurements [CAHSTxDscrdCongSR](#), [CAHSTxDscrdUnkwnRsrc](#), [CAHSTxDscrdIntErrSR](#) for detailed error causes.

## RxOcdraStackEventDiscardedUnsupported

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of SBR Stack Events discarded by OC-DRA that contained an unsupported Event Type value.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA discards a stack event received from the SBR that contained an unsupported Event Type value.

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which SBR Response messages are being received containing an invalid Online Charging Event Type value. Each Diameter Request containing an invalid Online Charging Event Type value is discarded
2. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxGyRoCcrInitNoMsisdn

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Gy/Ro CCR-I messages that OC-DRA failed to extract the MSISDN from the Subscription-Id Grouped AVP or the User-Name AVP.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA fails to extract the MSISDN from a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to INITIAL\_REQUEST (CCR-I) when session state is to be maintained

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro CCR-I messages are being received without containing an MSISDN in the Subscription-Id Grouped AVP or User-Name AVP. Each Gy/Ro CCR-I Request not containing an MSISDN in the Subscription-Id Grouped AVP or User-Name AVP is sent without modification to the OCS.
2. If session state is stored for this transaction, the MSISDN will be stored as "Not Present".

## RxGyRoCcrInitNoDestHostMultOcsPoolMode

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Gy/Ro CCR-I messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode..

**Collection Interval:** 5 min



**Peg Condition:** Each time a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to INITIAL\_REQUEST (CCR-I) is received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro CCR-I messages are being received without containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode for Regionalized Routing. Each Gy/Ro CCR-I Request message not containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode is sent without modification to the OCS.
2. When OC-DRA is configured to operate in Multiple OCS Pools Mode for Regionalize Routing, it relies on Range Based Address Resolution (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

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Gy/Ro CCR-E messages received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gy/Ro Credit-Control-Request message with the CC-Request-Type AVP set to EVENT\_REQUEST (CCR-E) is received without a Destination-Host when OC-DRA is operating in Multiple OCS Pools mode.

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro CCR-E messages are being received without containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode for Regionalized Routing. Each Gy/Ro CCR-E Request message not containing a Destination-Host when OC-DRA is operating in Multiple OCS Pools Mode is sent without modification to the OCS.
2. When OC-DRA is configured to operate in Multiple OCS Pools Mode for Regionalize Routing, it relies on Range Based Address Resolution (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

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of in-session Gy/Ro Diameter Credit Control Application Request messages received by OC-DRA without a Destination-Host.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives an in-session Gy/Ro Diameter Request message (i.e. CCR-U/T and RAR) that does not contain a Destination-Host.

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which in-session Gy/Ro Diameter Request messages (i.e. CCR-U/T and RAR) are being received without a Destination-Host. Session data is retrieved from the SBR for each in-session Gy/Ro Diameter Request message not containing a Destination-Host. If session data is found, a Destination-Host AVP is populated with the true server name and inserted into the Diameter Request and the Diameter Request is relayed. If session data is not found, the Diameter Request is rejected using "Session Not Found" error condition.
2. This condition may occur for any of the following reasons that require OC-DRA to be configured to store session state:
  - A client is not capable of learning the OCS server name from the CCA-I
  - The OCS server is not capable of learning the name of a client from the CCR-I
3. Verify that session state is properly configured if either client or OCS server is not capable in learning each other's hostname.

## RxOcdraSessionUnkToPeer

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Gy/Ro Diameter Answer messages received by OC-DRA from the peer with a Result-Code value 5002 (DIAMETER\_UNKNOWN\_SESSION\_ID).

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives a Gy/Ro Diameter Answer message from the peer with a Result-Code value 5002 (DIAMETER\_UNKNOWN\_SESSION\_ID).

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which Gy/Ro Diameter Answer messages are being received by OC-DRA containing a Result-Code value 5002 (DIAMETER\_UNKNOWN\_SESSION\_ID).
2. Each Gy/Ro Diameter Answer message received containing a Result-Code value 5002 is sent without modification to the peer that originated the Diameter Request.
3. If a Gy/Ro CCA-U or RAA message is received containing a Result-Code value 5002, OC-DRA will remove the session from the Session SBR if session state applies.

## RxOcdraAnsweringOcsNotConfigured

**Measurement Group:** OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of answering OCS servers not configured locally.

**Collection Interval:** 5 min

**Peg Condition:** Each time OC-DRA receives a session initiation answer from an OCS server whose FQDN is not configured at the Policy and Charging SOAMP

**Measurement Scope:** All

**Recovery:**

1. This measurement represents an exception condition in which an Online Charging session initiation response is being received from an OCS server that is not configured at the Policy and Charging SOAMP. Each Online Charging session initiation response (i.e., CCA-I) received from an unknown OCS server is relayed without modification to the downstream peer that initiated the Diameter transaction. However, session state is not stored for the Online Charging session. This condition causes Alarm 22730 Policy and Charging Configuration Error to be asserted. Refer to the *DSR Alarms and KPIs Reference* for details on Alarm 22730.
2. Determine whether the OCS server has been configured in **Policy and Charging > Configuration > Online Charging PDRA > OCSs** at the Policy and Charging site where Alarm 22730 has been asserted. If the OCS is not configured at the site, configure it using **Policy and Charging > Configuration > Online Charging PDRA > OCSs [Insert]**.
3. 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 61: OCP-DRA Congestion Exception Measurement Report Fields

Measurement Tag	Description	Collection Interval
RxGyRoReqDiscardedCongestionPerCmd	Number of Gy/Ro Diameter Credit Control Application Request messages discarded due to congestion.	5 min

## RxGyRoReqDiscardedCongestionPerCmd

**Measurement Group:** OC-DRA Congestion Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Diameter Request Command Abbreviation i.e. CCR-I/U/T/E, RAR, and "Total")

**Description:** The number of Gy/Ro Diameter Credit Control Application Request messages discarded due to congestion.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gy/Ro Diameter Credit Control Application Request message is discarded due to congestion.

**Note:** This measurement is pegged twice, once for the 3-digit error code and once for "Total".

**Measurement Scope:** All

**Recovery:**

This measurement represents an exception condition in which Gy/Ro Diameter Credit Control Application Request messages are discarded due to congestion. This condition causes Event 22707 Diameter Message Processing Failure to be generated. Refer to the *DSR Alarms and KPIs Reference* for details on Event 22707

## P-DRA 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 62: 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

Measurement Tag	Description	Collection Interval
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
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
GxpBindingSuccess	Number of Gx-Prime CCR Initial messages processed by PDRA 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

Measurement Tag	Description	Collection Interval
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
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
TmImsiBindingDuration	Histogram of IMSI binding durations.	5 min
TmGxSessionDuration	Histogram of normally terminated Gx session durations.	5 min
TmGxSessionRefresh	Histogram of Gx session refresh durations.	5 min
TmGxxSessionDuration	Histogram of normally terminated Gxx session durations.	5 min
TmGxxSessionRefresh	Histogram of Gxx session refresh durations.	5 min
TmRxSessionDuration	Histogram of normally terminated Rx session durations.	5 min
TmRxSessionRefresh	Histogram of Rx session refresh durations.	5 min
TmGxPrimeSessionDuration	Histogram of normally terminated Gx-Prime session durations.	5 min
TmGxPrimeSessionRefresh	Histogram of Gx-Prime session refresh durations.	5 min

Measurement Tag	Description	Collection Interval
TmS9SessionDuration	Histogram of normally terminated S9 session durations.	5 min
TmS9SessionRefresh	Histogram of S9 session refresh durations.	5 min

## RxPdraCcrInitMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of CCR Initial messages received by PDRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time the application receives a CCR Initial message.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## RxPdraCcrUpdateMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of CCR Update messages received by PDRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time the application receives a CCR Update message.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## RxPdraCcrTerminateMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of CCR Termination messages received by PDRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time the application receives a CCR Termination message.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### RxCcrInitNoImsiMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of CCR Initial messages without IMSI.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time P-DRA processes a CCR Initial message in which IMSI is not present.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### RxPdraRarGxMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of RAR messages received by PDRA for Gx interface,

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time the application receives a RAR message for Gx interface.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### RxPdraRarRxMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of RAR messages received by PDRA for Rx interface.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time the application receives a RAR message for Rx interface.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### RxPdraAarMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of AAR messages received by PDRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time the application receives an AAR message.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### RxPdraStrMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of STR messages received by PDRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented per interface each time the application receives a STR message.

**Measurement Scope:** All

**Recovery:**

No action necessary.



## PdraGxTopoHidingApplied

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of messages received on Gx interface on which topology hiding has been applied by P-DRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time topology hiding is applied when a message from Gx interface is processed by the application.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## PdraRxTopoHidingApplied

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of messages received on Rx interface on which topology hiding has been applied by P-DRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time topology hiding is applied when a message from Rx interface is processed by the application.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## RxPdraMsgRateAvg

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** Average Diameter ingress message processing rate of P-DRA during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is periodically updated based on average rate of the Diameter ingress messages being processed by P-DRA calculated over the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **RxPdraMsgRatePeak**

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** Peak Diameter ingress message processing rate of P-DRA during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is periodically updated based on maximum rate of the Diameter ingress messages being processed by P-DRA calculated over the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **RxPdra5002FromPcrf**

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of 5002 DIAMETER\_UNKNOWN\_SESSION\_ID responses received from a PCRF

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time a PCRF responds to a Diameter request with a 5002 response code.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **RxPdra5002FromPolicyClient**

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of 5002 DIAMETER\_UNKNOWN\_SESSION\_ID responses received from a policy client.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time a policy client responds to a Diameter request with a 5002 response code.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## TxPdraGxRarRelease

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Gx RAR requests initiated by P-DRA for the purpose of releasing a session as a result of an error in the P-DRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be pegged each time a P-DRA DA-MP server sends a P-DRA initiated RAR request to a policy client for the purpose of releasing a session due to an error in the P-DRA

**Measurement Scope:** All

**Recovery:**

1. Check **Alarms & Events > View History GUI** for pSBR Event 22711 - Policy SBR Database Error (refer to the *DSR Alarms and KPIs Reference* for details about this event) for more details about the possible cause of the error.
2. Contact [My Oracle Support \(MOS\)](#) for support as needed.

## RxPdraGxpCcrInitMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Gx-Prime CCR Initial messages processed by P-DRA against binding key priorities.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gx-Prime CCR-I message is processed by P-DRA.

**Measurement Scope:** All

**Recovery:**

No action required.

## RxPdraGxpCcrUpdateMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Gx-Prime CCR Update messages received by P-DRA.

**Collection Interval:** 5 min

**Peg Condition:** Each time the P-DRA Application receives a Gx-Prime CCR Update message.

**Measurement Scope:** All

**Recovery:**

No action required.

## RxPdraGxpCcrTerminateMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Gx-Prime CCR Termination messages received by P-DRA.

**Collection Interval:** 5 min

**Peg Condition:** Each time the P-DRA Application receives a Gx-Prime CCR Termination message.

**Measurement Scope:** All

**Recovery:**

No action required.

## PdraGxpTopoHidingApplied

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Gx-Prime CC Request messages on which topology hiding is applied.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gx-Prime CC request message is processed by the P-DRA application and topology hiding is applied on the message.

**Measurement Scope:** All

**Recovery:**

No action required.

## RxPdraFindingBindingSuccess

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (bucketed by binding key priority number from 1 to 5)

**Description:** Number of binding-dependent (Gx-Prime CCR Initial and AAR) messages processed by P-DRA against binding key priorities.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gx-Prime CCR-I message is processed by P-DRA.

**Note:** The number is sorted and stored in 5 buckets:

- Bucket 1 holds the number of Gx-Prime CCR-I or AAR messages that lead to successful binding record findings corresponding to the binding keys with the highest (1) priority.
- Bucket 2 (or 3 or 3) holds the number of Gx-Prime CCR-I or AAR messages that lead to successful binding record findings corresponding to the configured binding keys with priority 2 (or 3 or 4).
- Bucket 5 holds the number of Gx-Prime CCR-I or AAR messages that lead NO binding record finding after exhausting all binding keys.

**Measurement Scope:** All

**Recovery:**

No action required.

## RxPdraRarGxpMsgs

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Gx-Prime RAR messages processed by P-DRA.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gx-Prime RAR message is processed by P-DRA.

**Measurement Scope:** All

**Recovery:**

No action required.

## RxBindCapApn2PcrfPool

**Measurement Group:** P-DRA Diameter Usage

**Description:** The number of times a given APN is successfully mapped to PCRF pool.

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by APN)

**Collection Interval:** 5 min

**Peg Condition:** Each time a binding capable session initiation request is successfully mapped to a PCRF Pool (a configured APN), regardless of whether or not the rule matching results in the selection of a PCRF Pool or a PCRF Sub-Pool.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement shows the distribution of binding capable session initiation requests across the range of configured APNs.
2. Contact [My Oracle Support \(MOS\)](#).

## RxBindCap2PcrfSubPool

**Measurement Group:** P-DRA Diameter Usage

**Description:** The number of binding capable session initiation requests that were mapped to a PCRF Sub-Pool by a given PCRF Sub-Pool Selection Rule.

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by PCRF Sub-Pool Selection Rule)

**Collection Interval:** 5 min

**Peg Condition:** Each time a binding capable session initiation request is successfully mapped to a PCRF Sub-Pool as a result of a given PCRF Sub-Pool Selection Rule, regardless of whether the request is routed to the Sub-Pool or routed elsewhere due to an existing binding.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement shows the distribution of binding capable session initiation requests for which a new binding would route to a PCRF Sub-Pool across the set of PCRF Sub-Pool Selection Rules.
2. Contact [My Oracle Support \(MOS\)](#).

## RxBindCapPcrfPool2Prt

**Measurement Group:** P-DRA Diameter Usage

**Description:** The number of binding capable session initiation requests that are routed using a PRT table chosen as a result of PCRF Pool or PCRF Sub-Pool mapping to the PRT.

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by PCRF Pool or Sub-Pool)

**Collection Interval:** 5 min

**Peg Condition:** Each time a binding capable session initiation request is routed using a PRT table selected on the basis of the PCRF Pool or Sub-Pool, regardless of whether or not the request was routed successfully.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement shows the distribution of binding capable session initiation requests that are routed using a given Peer Routing Table at each site.
2. Contact [My Oracle Support \(MOS\)](#).

**RxPdraAsrMsgs**

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ASR messages received by PDRA.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented each time the application receives an ASR message.

**Measurement Scope:** All

**Recovery:**

No action necessary.

**TxPdraGxRarQuery**

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Gx RAR messages initiated by P-DRA for the purposes of querying for session existence at the policy client.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a P-DRA DA-MP server sends a P-DRA initiated RAR request to a policy client for the purpose of querying the policy client for session existence.

**Measurement Scope:** All

**Recovery:**

1. If this value is consistently non-zero, it may indicate that the stale session timing is configured to be too short. The stale session timer for a given session is configured in **Policy DRA > Configuration > Access Point Names** if the session is associated with a configured APN, or **Policy DRA > Configuration > Network-Wide Options** if the session is not associated with an APN, or associated with an APN that is not configured.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxSuspectBindingRuleMatchIncrCount

**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 not configured as "Remove Immediately."

**Collection Interval:** 5 min

**Peg Condition:** Each time a Suspect Binding Removal Rule match has occurred and the rule is not configured to remove the Binding immediately.

**Measurement Scope:** All

**Recovery:**

No action required.

## RxSuspectBindingRuleMatchRmvInt

**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.

## TmImsiBindingDuration

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of IMSI binding durations.

**Collection Interval:** 5 min

**Peg Condition:** When an ImsiApnAnchorKey binding is removed due to removal of the last session reference associated with that binding, the appropriate histogram instance shall be incremented by 1.



If an ImsiApnAnchorKey record is removed when the only session references are in one of the "early" states (i.e. Early Master or Early Slave), this measurement must not be incremented, to prevent skewing the data with binding capable sessions that were never successfully established.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of subscriber binding lifetimes, providing information to assist in predicting the duration of a binding SBR Database Reconfiguration.

The histogram shows the durations of IMSI bindings. A given subscriber (IMSI) may have more than one binding. A binding may have more than one session associated with it.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

## TmGxSessionDuration

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of normally terminated Gx session durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gx session record is removed, the appropriate histogram instance shall be incremented by 1.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gx session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each

interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

## TmGxSessionRefresh

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of Gx session refresh durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gx sessions are refreshed during RAA processing.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gx session refresh durations, providing information to assist 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

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of normally terminated Gxx session durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gxx session record is removed, the appropriate histogram instance shall be incremented by 1.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gxx session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

## TmGxxSessionRefresh

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of Gxx session refresh durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gxx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gxx sessions are refreshed during RAA processing.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gxx session refresh durations, providing information to assist 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

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of normally terminated Rx session durations.

**Collection Interval:** 5 min

**Peg Condition:** When an Rx session record is removed, the appropriate histogram instance shall be incremented by 1.

**Note:** Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Rx session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

**Note:** This measurement applies only to sessions for which session state is being maintained. Policy DRA does not maintain Rx session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

## TmRxSessionRefresh

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of Rx session refresh durations.

**Collection Interval:** 5 min

**Peg Condition:** When an Rx session record is refreshed, the appropriate histogram instance shall be incremented by 1. Rx sessions are refreshed during RAA processing.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Rx session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session

Timeout for an APN using the Rx interface is set too short, the session audit will remove the session prematurely, possibly causing signaling failures for subsequent in-session request processing needing topology hiding translations.

**Note:** This measurement applies only to sessions for which session state is being maintained. Policy DRA does not maintain Rx session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

## TmGxPrimeSessionDuration

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of normally terminated Gx-Prime session durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gx-Prime session record is removed, the appropriate histogram instance shall be incremented by 1.

**Note:** Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gx-Prime session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

**Note:** This measurement applies only to sessions for which session state is being maintained. Policy DRA does not maintain Gx-Prime session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

## TmGxPrimeSessionRefresh

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of Gx-Prime session refresh durations.

**Collection Interval:** 5 min

**Peg Condition:** When a Gx-Prime session record is refreshed, the appropriate histogram instance shall be incremented by 1. Gx-Prime sessions are refreshed during RAA processing.

**Note:** Binding-dependent session records are stored only if topology hiding applies to the AF that created the session.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of Gx-Prime session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the Gx-Prime interface is set too short, the session audit will remove the session prematurely, possibly causing signaling failures for subsequent in-session request processing needing topology hiding translations.

**Note:** This measurement applies only sessions for which session state is being maintained. Policy DRA does not maintain Gx-Prime session state unless Topology Hiding applies to the session.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

## TmS9SessionDuration

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of normally terminated S9 session durations.

**Collection Interval:** 5 min

**Peg Condition:** When an S9 session record is removed, the appropriate histogram instance shall be incremented by 1.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of S9 session lifetimes, providing information to assist in predicting the duration of a session SBR Database Reconfiguration.

Histogram measurements consist of 101 array entries:

- 0 – Overflow. Incremented if duration is greater than 9,830 minutes
- 1-5 – 1 minute buckets. Incremented for durations between 0 and 5 minutes.
- 6-10 – 5 minute buckets. Incremented for durations between 0 and 30 minutes.
- 11-15 – 10 minute buckets. Incremented for durations between 30 and 80 minutes.
- 16-20 – 30 minute buckets. Incremented for durations between 80 and 230 minutes.
- 21-100 – 120 minute buckets. Incremented for durations between 230 and 9,830 minutes.

A session SBR Database Reconfiguration cannot complete normally until all session records for all supported Diameter interfaces have migrated. As a result, the session duration histogram for each interface being used must be examined to determine which interface has the highest average session duration. This value can be used to predict the likely duration of the reconfiguration.

## TmS9SessionRefresh

**Measurement Group:** P-DRA Diameter Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** Histogram of S9 session refresh durations.

**Collection Interval:** 5 min

**Peg Condition:** When an S9 session record is refreshed, the appropriate histogram instance shall be incremented by 1. S9 sessions are refreshed during RAA processing.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement shows a histogram of S9 session refresh durations, providing information to assist in setting the Stale Session Timeout for APNs that use this interface. If the Stale Session Timeout for an APN using the S9 interface is set too short, the session audit will send an RAR to the Policy Client that created the session to ask if it is still valid. Having the Stale Session Timeout set too short results in increased RAR traffic between the Policy 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 63: 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
RxPdraRequestProtocolErr	Number of invalid Request messages received from DRL. Invalid request message includes - unsupported command codes, unsupported application Id, missing or invalid AVPs.	5 min
RxStackEventDiscardedCaFailure	Number of stack events discarded by ComAgent due to ComAgent failures	5 min
TxAaxMsgDiscardedDueToDrlQueueFull	Number of AAR/AAA messages discarded by P-DRA due to DRL queue being full.	5 min
TxAsxMsgDiscardedDueToDrlQueueFull	Number of ASR messages discarded by P-DRA due to DRL queue being full.	5 min



Measurement Tag	Description	Collection Interval
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
TxPdraAnswersGeneratedForPsrbrErrResp	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

## RxPdraRequestProtocolErr

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of invalid Request messages received from DRL. Invalid request message includes - unsupported command codes, unsupported application Id, missing or invalid AVPs. The AARs without Dest-Host AVP are still valid AARs and shall be pegged.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time an invalid diameter request message is received by P-DRA.

**Measurement Scope:** All

**Recovery:**

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

**TxCcxMsgDiscardedDueToDrlQueueFull**

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of CCR/CCA messages discarded by P-DRA due to DRL queue being full.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a CCR/CCA message is discarded by the application because DRL queue is full.

**Measurement Scope:** All

**Recovery:**

No action required.

**TxRaxMsgDiscardedDueToDrlQueueFull**

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of RAR/RAA messages discarded by P-DRA due to DRL queue being full.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a RAR/RAA message is discarded by the application because DRL queue is full. The measurement shall be incremented by one each time a CCR/CCA message is discarded by the application because DRL queue is full.

**Measurement Scope:** All

**Recovery:**

No action required.

**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.

## **TxStxMsgDiscardedDueToDrlQueueFull**

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Description:** Number of STR/STA messages discarded by P-DRA due to DRL queue being full.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a STR/STA message is discarded by the application because DRL queue is full.

**Measurement Scope:** All

**Recovery:**

No action required.

## **TxPdraAnswersGeneratedForPsbrErrResp**

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Diameter Answer messages generated by P-DRA because of pSBR stack event error response.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a diameter answer message is generated by P-DRA because of pSBR stack event error response.

**Measurement Scope:** All

**Recovery:**

No action required.

## **TxPdraAnswersGeneratedForDiameterErr**

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Diameter answers generated by P-DRA due to error in received Diameter messages from DRL.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a diameter answer message is generated by P-DRA due to error in received Diameter messages from DRL.

The errors encountered may be:

- Diameter protocol errors
- P-DRA application specific errors due to absence of some optional AVP(s) in the Diameter request

**Measurement Scope:** All

**Recovery:**

No action required.

### TxDraErrAnsGeneratedCAFailure

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Diameter answers generated by P-DRA due to ComAgent failure.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a diameter answer message is generated by P-DRA due to comagent routing failure.

**Measurement Scope:** All

**Recovery:**

No action required.

### 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.

## TxAsxMsgDiscardedDueToDrlQueueFull

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of ASR messages discarded by P-DRA due to DRL queue being full.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a ASR message is discarded by the application because DRL queue is full.

**Measurement Scope:** All

**Recovery:**

No action required.

## TxPdraAnswersGeneratedConfigErr

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Diameter Answers generated by P-DRA due to configuration errors when processing session initiation requests.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is pegged each time when P-DRA generates an error Answer in processing a session initiation request due to

- No PCRF being configured at the site where the request is processed OR
- No PCRF ID being found in PCRF table OR
- The APN contained in the request message not configured.

The measurement is pegged also each time when P-DRA generates an error Answer in processing a binding dependent session initiation request if the APN in 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.

**Note:** In binding dependent request cases, this measurement is raised only when the Binding Not Found condition applies, the APN is unconfigured, and an IMSI or MSISDN was used as a possible correlation key.

**Measurement Scope:** All

**Recovery:**

1. Check the P-DRA System OAM GUI Main Menu: **Policy DRA > Configuration > PCRFs** to ensure PCRFs are configured properly.
2. If there is an unconfigured PCRF, it means that the binding capable session initiation request was routed to a PCRF that is not configured in **Policy DRA > Configuration > PCRFs** at the site where

the request was received. This indicates a mismatch between the PCRF's configuration and the routing configuration. If the PCRF is a valid choice for the request, configure the PCRF in **Policy DRA > Configuration > PCRFs**. If the PCRF is not valid for the request, correct the routing table or tables that included the PCRF.

See also [RxBindCapUnknownPcrf](#).

3. If there is an unconfigured APN and if the APN string is valid, configure the APN at the NOAMP using the **Policy DRA > Configuration > Access Point Names** screen. If the APN string is not valid, investigate the policy client to determine why it is sending policy session initiation requests using the invalid APN.

See also [RxBindCapUnknownApn](#) and [RxBindDepUnknownApn](#).

4. If there is a missing APN, investigate the policy client to determine why it is sending policy session initiation requests with no APN.

See also [RxBindCapMissingApn](#) and [RxBindDepMissingApn](#)

5. If there are no PCRFs configured, configure PCRFs at the SOAM GUI for the site using **Policy DRA > Configuration > PCRFs**.

6. If needed, contact [My Oracle Support \(MOS\)](#) for further assistance.

## RxPcaTransactionsRejected

**Measurement Group:** P-DRA Diameter Exception, OC-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of transactions rejected by Policy and Charging DSR Application.

**Collection Interval:** 5 min

**Peg Condition:** Each time the Policy and Charging Application (PCA) initiates an Answer response with a non-successful Result-Code (one containing a non-2xxx value) or discards an ingress Request message for any of the following reasons:

- OC-DRA is Unavailable or Disabled
- Diameter Protocol Error Detected
- OC-DRA specific errors due to absence of mandatory Diameter Credit Control Application AVP(s) used for routing
- Diameter Request discarded during Congestion
- Diameter Message Routing failure due to DRL's Request Queue Full
- Communication Agent Error (i.e., Queue Full)
- Unexpected SBR Error
- Online Charging Session not found when required for routing

**Note:** This measurement is only pegged once for an ingress Request message.

**Measurement Scope:** Server Group

**Recovery:**

1. This measurement gives an indication if any Gy/Ro Diameter Credit Control Application Request messages were NOT successfully relayed by OC-DRA. OC-DRA can fail to relay Gy/Ro Diameter

Credit Control Application Request messages for various reasons as stated above for “Peg Condition”.

2. This measurement is the summation of the following measurements which should be inspected within the same collection interval to further determine the specific cause of failure:

- [TxGyRoAnsGenByOcdraPerCmd](#)
- [TxGyRoAnsGenByDrlPerCmd](#)
- [RxGyRoReqDiscardedCongestionPerCmd](#)

**Note:** Due to the timing of when measurements are incremented and collected during a collection interval, this measurement may not be the exact sum of the measurements listed above.

## TxGxpCcxCmdDiscardedDrlQueueFull

**Measurement Group:** P-DRA Diameter Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of Gx-Prime CCR/CCA messages discarded by P-DRA due to DRL queue being full.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Gx-Prime CCR/CCA message is discarded by the P-DRA application because DRL queue is full.

**Measurement Scope:** All

**Recovery:**

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

## RxBindCapPcrfPoolNotMapped

**Measurement Group:** P-DRA Diameter Exception

**Description:** The number of binding capable session initiation requests that were destined for a PCRF Pool or Sub-Pool for which no PRT table was configured.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval:** 5 min

**Peg Condition:** Each time a new binding attempt is supposed to be routed to a PCRF Pool or Sub-Pool for which no PRT table is configured at the site where the routing is occurring.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement represents an exception condition in which a PCRF Pool or Sub-Pool has been configured for use at the NOAMP, but no PRT table has been configured at one or more sites to

route requests to that PCRF Pool or Sub-Pool. Consider whether a PRT table should be configured at the Network Element to which this measurement applies

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

## RxBindCapUnknownApn

**Measurement Group:** P-DRA Diameter Exception

**Description:** The number of binding capable session initiation requests containing an unconfigured APN.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval:** 5 min

**Peg Condition:** Each time a binding capable session initiation request is received containing an APN that is not configured at the Policy DRA NOAMP.

**Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement represents an exception condition in which binding capable session initiation request are being received from unknown APN values. Each binding capable session initiation request containing an unconfigured APN is rejected using the Missing Or Unconfigured APN error condition.
2. Contact [My Oracle Support \(MOS\)](#).

## RxBindCapMissingApn

**Measurement Group:** P-DRA Diameter Exception

**Description:** The number of binding capable session initiation requests containing no APN.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval:** 5 min

**Peg Condition:** Each time a binding capable session initiation request is received containing no APN (i.e. no Called-Station-ID AVP).

**Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement represents an exception condition in which binding capable session initiation request are being received with no APN value. Each binding capable session initiation request containing a missing APN is rejected using the Missing Or Unconfigured APN error condition.



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

## RxBindDepUnknownApn

**Measurement Group:** P-DRA Diameter Exception

**Description:** The number of attempts to correlate a binding dependent session initiation request using a non-specific binding correlation key (i.e. IMSI or MSISDN), but containing an unconfigured APN.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval:** 5 min

**Peg Condition:** Each time an attempt is made to find a binding using either IMSI or MSISDN, but the binding dependent session initiation request contains an APN that is not configured at the Policy DRA NOAMP. If both IMSI and MSISDN are configured in the binding key priority table, this measurement can be incremented twice for one binding dependent session initiation request.

**Note:** This condition also causes Alarm 22730 - Policy DRA Configuration Error to be asserted. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement represents an exception condition in which the binding key priority is configured to use IMSI, MSISDN, or both, but the binding dependent session initiation request has an APN value that is not configured. This condition causes binding correlation to fail for the MSISDN or IMSI key types. If no other key is present and configured for correlation, the request is rejected using the Binding Not Found error condition.
2. Contact [My Oracle Support \(MOS\)](#).

## RxBindDepMissingApn

**Measurement Group:** P-DRA Diameter Exception

**Description:** The number of attempts to correlate a binding dependent session initiation request using a non-specific binding correlation key (i.e. IMSI or MSISDN), but containing no APN

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval:** 5 min

**Peg Condition:** Each time an attempt is made to find a binding using either IMSI or MSISDN, but the binding dependent session initiation request contains no APN. If both IMSI and MSISDN are configured in the binding key priority table, this measurement can be incremented twice for one binding dependent session initiation request.

**Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement represents an exception condition in which the binding key priority is configured to use IMSI, MSISDN, or both, but the binding dependent session initiation request has no APN value. This condition causes binding correlation to fail for the MSISDN or IMSI key types. If no other key is present and configured for correlation, the request is rejected using the Binding Not Found error condition.
2. Contact [My Oracle Support \(MOS\)](#).

## RxBindCapUnknownPcrf

**Measurement Group:** P-DRA Diameter Exception

**Description:** The number of binding capable session initiation answers coming from an unconfigured PCRF.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval:** 5 min

**Peg Condition:** Each time a binding capable session initiation answer for a new binding is received from a PCRF that is not configured at the Policy DRA SOAM.

**Note:** This condition also causes Alarm 22730 - Policy and Charging Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) to be asserted.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement represents an exception condition in which binding capable session initiation answers for new bindings are being received from unknown PCRF FQDNs. When this occurs, the binding capable session answered by the unconfigured PCRF is torn down by an RAR containing a Session-Release-Cause AVP send from the Policy DRA.
2. Refer to Alarm 22730 - Policy and Charging Configuration Error in the *DSR Alarms and KPIs Reference* for further information.
3. Contact [My Oracle Support \(MOS\)](#).

## 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 64: 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

Measurement Tag	Description	Collection Interval
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

**Measurement Group:** P-DRA Congestion Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of CCR messages discarded by P-DRA due to congestion.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time a CCR message is discarded by P-DRA due to congestion.

**Measurement Scope:** All

**Recovery:**

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

### RxRarMsgDiscardedDueToCongestion

**Measurement Group:** P-DRA Congestion Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of RAR messages discarded by P-DRA due to congestion.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time an RAR message is discarded by P-DRA due to congestion.

**Measurement Scope:** Network, NE, Server

**Recovery:**

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

## RxAarMsgDiscardedDueToCongestion

**Measurement Group:** P-DRA Congestion Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of AAR messages discarded by P-DRA due to congestion.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time an AAR message is discarded by P-DRA due to congestion.

**Measurement Scope:** All

**Recovery:**

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

**Measurement Dimension:** Single

**Description:** Number of ASR messages discarded by P-DRA due to P-DRA congestion.

**Collection Interval:** 5 min

**Peg Condition:** The measurement shall be incremented by one each time an ASR message is discarded by P-DRA due to congestion.

**Measurement Scope:** All

**Recovery:**

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

**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 65: Peer Routing Rules Measurement Report Fields**

Measurement Tag	Description	Collection Interval
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

**RxPeerAnswers**

**Measurement Group:** Peer Node Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Node ID)

**Description:** Number of routable Answer messages received from Peer-X.

**Collection Interval:** 5 min

**Peg Condition:** When DRL receives an Answer message event from DCL with a valid Transport Connection ID owned by Peer-X.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxPeerRequests

**Measurement Group:** Peer Node Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Node ID)

**Description:** Number of routable Request messages received from Peer-X.

**Collection Interval:** 5 min

**Peg Condition:** When DRL receives an Request message event from DCL with a valid Transport Connection ID owned by Peer-X.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxPeerAnswers

**Measurement Group:** Peer Node Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Node ID)

**Description:** Number of routable Answer messages sent to Peer-X.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully queues an Answer message for Peer-X to DCL.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### TxPeerRequests

**Measurement Group:** Peer Node Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Node ID)

**Description:** Number of routable Request messages sent to Peer-X.

**Collection Interval:** 5 min

**Peg Condition:** When DRL successfully queues a Request message for Peer-X to DCL.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## Peer Routing Rules measurements

The Peer Routing Rules measurement report is a set of measurements associated with the usage of Peer Routing Rules. These measurements allow you to determine which Peer Routing Rules are most commonly used and the percentage of times that messages were successfully (or unsuccessfully) routed using the Route List.

**Table 66: 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

Measurement Tag	Description	Collection Interval
TxMsgPrtMarkedForCpy	Number of Request Messages set to a valid MCCS and marked for Message Copy	5 min

## RxPrtSelected

**Measurement Group:** Peer Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (PRT ID)

**Description:** Number of times that a peer routing rule from PRT-X was selected for routing a Request message.

**Collection Interval:** 5 min

**Peg Condition:** When the DRL selects a peer routing rule from PRT-X for routing a message.

**Measurement Scope:** Site

**Recovery:**

No action required.

## RxRuleDuplicatePriority

**Measurement Group:** Peer Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Routing Rule ID)

**Description:** The number of times that the Peer Routing Rule was selected for routing a message but another Peer Routing Rule had the same priority and was ignored.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR searches the Peer Routing Rules and finds more than one highest priority Peer Routing Rule with the same priority that matches the search criteria.

The measurement is associated with the Peer Routing Rule that is selected for routing.

**Measurement Scope:** Server Group

**Recovery:**

1. If one or more MPs in a server site have failed, the traffic will be distributed between the remaining MPs in the server site. MP server status can be monitored from the **Status & Manage > Server** page.
2. The mis-configuration of Diameter peers may result in too much traffic being distributed to the MP. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. Each MP in the server site should be receiving approximately the same ingress transaction per second.



3. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from the **Status & Manage > KPIs** page. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
4. A software defect may exist resulting in PDU buffers not being deallocated to the pool. This alarm should not normally occur when no other congestion alarms are asserted. The alarm log should be examined using the **Alarms & Events** page.
5. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## RxRuleFwdFailActionSendAns

**Measurement Group:** Peer Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Routing Rule ID)

**Description:** The number of times that the Peer Routing Rule was selected for routing a Request message and the message was not successfully routed because the Peer Routing Rule's action is Send Answer.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR selects a Peer Routing Rule to route a Request message and the Peer Routing Rule's action is Send Answer.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRuleFwdFailAll

**Measurement Group:** Peer Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Routing Rule ID)

**Description:** The number of times that the Peer Routing Rule was selected for routing a Request message and the message was not successfully routed for any reason other than "Send Answer" and "Abandon with No Answer".

**Collection Interval:** 5 min

**Peg Condition:** When the DSR selects a Peer Routing Rule to route a Request message and one of the following conditions are met:

1. The Peer Routing Rule's action is Send Answer.
2. The Route List associated with the Peer Routing Rule has an Operational Status of Unavailable.
3. The DSR attempts to route the call but exhausts all routes associated with the Route List and sends an Answer response 3002 (DIAMETER\_UNABLE\_TO\_DELIVER) .

The Route List measurement is associated with the Route List selected for routing.

**Measurement Scope:** Site

**Recovery:**

1. If a Peer Routing Rule has been configured with the action Send Answer, then every time this Peer Routing Rule is selected for routing a message, this measurement will be incremented. A Peer Routing Rule's action can be viewed using the **Diameter > Configuration > Peer Routing Rules** page.
2. If a Peer Routing Rule has been configured with the action Route to Peer, then every time this Peer Routing Rule is selected for routing a message, the Route List associated with this Peer Routing Rule will be used for routing the message. The Peer Routing Rule's Route List can be viewed using the **Diameter > Configuration > Peer Routing Rules** page.

**RxRuleSelected**

**Measurement Group:** Peer Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Routing Rule ID)

**Description:** The number of times that the Peer Routing Rule was selected for routing a Request message.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR selects a Peer Routing Rule for routing a message.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

**TxMsgPrtMarkedForCpy**

**Measurement Group:** Peer Routing Rules

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Peer Routing Rule ID)

**Description:** The number of Request messages set to a valid MCCA and marked for Message Copy

**Collection Interval:** 5 min

**Peg Condition:** Each time DRL selects a peer routing rule for routing a Request message, the rule action is set to "Route to Peer" and a MCCA is assigned to the peer routing rule.

**Recovery:**

No action required.

**Route List measurements**

The Route List measurement report is a set of measurements associated with the usage of Route Lists. These measurements will allow the user to determine which Route Lists are most commonly used

and the percentage of times that messages were successfully (or unsuccessfully) routed using the Route List.

**Table 67: 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****Measurement Group:** Route List**Measurement Type:** Simple**Measurement Dimension:** Arrayed (by Route List ID)**Description:** Number of times that Route List was selected for routing a Request message.**Collection Interval:** 5 min**Peg Condition:** When the DSR selects a Route List for routing a message.

The Route List measurement is associated with the Route List selected for routing.

**Measurement Scope:** Server Group**Recovery:**

No action required.

**RxRouteListUnavailable****Measurement Group:** Route List**Measurement Type:** Simple**Measurement Dimension:** Arrayed (by Route List ID)**Description:** The number of Request messages from a downstream peer that were rejected by a Local Node because the selected Route List had an Operational Status of Unavailable.**Collection Interval:** 5 min**Peg Condition:** Request message from a downstream peer is rejected by a Local Node because the selected Route List had an Operational Status of Unavailable. This occurs when the Route List was selected via a Peer Routing Rule or implicit routing but its Operational Status was Unavailable.

The Route List measurement is associated with the Route List selected for routing.

**Measurement Scope:** Server Group**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.

**TmRouteListOutage****Measurement Group:** Route List

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Route List ID)

**Description:** 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.

**Collection Interval:** 5 min

**Peg Condition:** The time duration interval starts when one of the following conditions occurs:

1. A new collection interval for the measurement begins and Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted.
2. Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted.

The time duration interval stops when one of the following conditions occurs:

1. The current collection interval for the measurement ends and Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is asserted.
2. Alarm 22053 - Route List Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm) is cleared.

When a time duration interval completes, the time measured is added to the total measurement value.

**Measurement Scope:** Server Group

**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 68: Routing Usage Measurement Report Fields**

Measurement Tag	Description	Collection Interval
RxRoutedIntraMPAttempt	Number of attempts to route an ingress request message via intra-MP routing.	5 min
RxRoutedPeerDirect	Number of Request messages implicitly routed directly to a peer.	5 min
RxRoutedPeerRouteList	Number of Request messages implicitly routed to a peer via its alternate implicit route.	5 min

Measurement Tag	Description	Collection Interval
RxRoutedPrt	Number of Request messages routed using Peer Routing Rules.	5 min

### RxRoutedIntraMPAttempt

**Measurement Group:** Routing Usage

**Measurement Type:** Simple

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

**Description:** The number of attempts to route an ingress request message via intra-MP routing.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR selects a transport connection controlled by the local MP and successfully queues the Request message on the local message queue.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxRoutedPeerDirect

**Measurement Group:** Routing Usage

**Measurement Type:** Simple

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

**Description:** The number of Request messages implicitly routed directly to a peer.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR does not find a Peer Routing Rule that matches message content, the Destination-Host AVP is present and its value matches a FQDN of a peer, and the peer is available for egress routing.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

### RxRoutedPeerRouteList

**Measurement Group:** Routing Usage

**Measurement Type:** Simple

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

**Description:** The number of Request messages implicitly routed to a peer via its alternate implicit route.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR does not find a Peer Routing Rule that matches message content, the Destination-Host AVP is present and its value matches a FQDN of a peer, the peer is Unavailable for egress routing, and the user-defined alternate implicit route for the peer contains a valid Route List.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## RxRoutedPrt

**Measurement Group:** Routing Usage

**Measurement Type:** Simple

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

**Description:** The number of Request messages routed using Peer Routing Rules.

**Collection Interval:** 5 min

**Peg Condition:** When the DSR selects the highest priority Peer Routing Rule which matches message content.

The connection measurement is associated with the connection from which the Request message was received.

**Measurement Scope:** Server Group

**Recovery:**

No action required.

## SBR Audit measurements

The Session Binding Repository (SBR) Audit measurement report contains measurements that provide performance information that is specific to the SBR Binding Database.

**Table 69: SBR Audit Measurement Report Fields**

Measurement Tag	Description	Collection Interval
SbrImsiAuditDbErr	Number of ImsiAnchorKey audit failures due to DB errors	5 min

Measurement Tag	Description	Collection Interval
SbrMsisdnAuditDbErr	Number of MsidnAlternateKey audit failures due to DB error.	5 min
SbrIpv4AuditDbErr	Number of Ipv4AlternateKey audit failures due to DB error.	5 min
SbrIpv6AuditDbErr	Number of Ipv6AlternateKey audit failures due to DB error	5 min
SbrSessionRecsAudited	Number of Session Records audited during the reporting interval	5 min
SbrExpiredSessionsFound	of Expired Session Records found by audit during the reporting interval	5 min
SbrImsiRecsAudited	Number of IMSI Anchor Key Records audited during the reporting interval	5 min
SbrStaleSessionRemoved	Number of stale session records that are terminated by audit	5 min
SbrIpv4RecsAudited	Number of IPv4 Alternate Key Records audited during the reporting interval	5 min
SbrIpv4RecsRemoved	Number of IPv4 Alternate Key Records removed by audit during the reporting interval	5 min
SbrIpv6RecsAudited	Number of IPv6 Alternate Key Records audited during the reporting interval	5 min
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	5 min



Measurement Tag	Description	Collection Interval
	the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record	
SbrIpv6AuditCaErr	Number of Ipv6AlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record	5 min
SbrIpv6RecsRemoved	Number of IPv6 Alternate Key Records removed by audit during the reporting interval	5 min
SbrMsisdnRecsAudited	Number of MSISDN Alternate Key Records audited during the reporting interval	5 min
SbrMsisdnRecsRemoved	Number of MSISDN Alternate Key Records removed by audit during the reporting interval	5 min
SbrImsiRecsRemoved	Number of IMSI Anchor Key Records removed by audit during the reporting interval	5 min
SbrImsiSrRemovedByAudit	Number of IMSI binding sessionRefs removed by the binding audit	5 min
SbrMsisdnSrRemovedByAudit	Number of MSISDN binding sessionRefs removed by the binding audit	5 min
SbrOcSessionsAudited	Number of Online Charging sessions audited	5 min
SbrOcSessionsRemovedByAudit	Number of Online Charging sessions that were removed by an audit	5 min
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

Measurement Tag	Description	Collection Interval
TxSbrAuditSEReqSentRatePeak	The maximum number of Binding Audit stack events sent per second to Session servers in the selected time interval.	5 min

### SbrImsiAuditDbErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ImsiAnchorKey audit failures due to DB errors

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever an ImsiAnchorKey audit fails due to a DB error.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrMsisdnAuditDbErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of MsidnAlternateKey audit failures due to DB error.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a MsidnAlternateKey audit fails due to DB error.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrIpv4AuditDbErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Ipv4AlternateKey audit failures due to DB error.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a Ipv4AlternateKey audit fails due to a DB error.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrIpv6AuditDbErr**

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Ipv6AlternateKey audit failures due to DB error.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a Ipv6AlternateKey audit fails due to a DB error.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrSessionRecsAudited**

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Session Records audited during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time a Session record is audited.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrExpiredSessionsFound**

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Expired Session Records found by audit during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time a Session record is audited and found to be stale.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrImsiRecsAudited

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of IMSI Anchor Key Records audited during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time an ImsiAnchorKey record is audited.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrStaleSessionRemoved

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of stale session records that are terminated by audit.

**Collection Interval:** 5 min

**Peg Condition:** Every time a session record is audited that finds a time out.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrIpv4RecsAudited

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of IPv4 Alternate Key Records audited during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time an Ipv4AlternateKey record is audited.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrIpv4RecsRemoved

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of IPv4 Alternate Key Records removed by audit during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time an Ipv4AlternateKey record is removed by audit.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrIpv6RecsAudited

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of IPv6 Alternate Key Records audited during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time an Ipv6AlternateKey record is audited.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrSessionAuditDbErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Session audit failures due to DB error.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a Session audit fails due to DB error.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrSessionRefAuditDbErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of SessionRef audit failures due to DB errors.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a SessionRef audit fails due to DB error.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrImsiAuditCaErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of ImsiAnchorKey audit failures due to ComAgent errors

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever an ImsiAnchorKey audit fails due to ComAgent error.

**Measurement Scope:** All

**Recovery:**

1. Check ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details for this event) and ComAgent measurements [CAHSTxDscrdCongSR](#), [CAHSTxDscrdUnkwnRsrc](#), and [CAHSTxDscrdIntErrSR](#) for detailed error causes.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#) for assistance.

## SbrMsisdnAuditCaErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Description:** The number of MsidnAlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated when a MsidnAlternateKey audit fails due to a ComAgent error.

**Measurement Scope:** All

**Recovery:**

1. Check ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details about this event) and ComAgent measurements [CAHSTxDscrdCongSR](#), [CAHSTxDscrdUnkwnRsrc](#), and [CAHSTxDscrdIntErrSR](#) for detailed error causes.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#) for assistance.

## SbrIpv4AuditCaErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Ipv4AlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a Ipv4AlternateKey audit fails due to ComAgent error.

**Measurement Scope:** All

**Recovery:**

1. Check ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details for this event) and ComAgent measurements [CAHSTxDscrdCongSR](#), [CAHSTxDscrdUnkwnRsrc](#), and [CAHSTxDscrdIntErrSR](#) for detailed error causes.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#) for assistance.

## SbrIpv6AuditCaErr

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Ipv6AlternateKey audit failures due to a ComAgent error condition when the pSBR sends findSessionRef stack event to the active pSBR for the sessionReference record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a Ipv6AlternateKey audit fails due to ComAgent error.

**Measurement Scope:** All

**Recovery:**

1. Refer to ComAgent Event 19832 - Communication Agent Reliable Transaction Failed (refer to the *DSR Alarms and KPIs Reference* for details about this event) and ComAgent measurements [CAHSTxDscrdCongSR](#), [CAHSTxDscrdUnkwnRsrc](#), and [CAHSTxDscrdIntErrSR](#) for detailed error causes.
2. If the problem persists, contact [My Oracle Support \(MOS\)](#) for assistance.

**SbrIpv6RecsRemoved****Measurement Group:** SBR Audit**Measurement Type:** Simple**Measurement Dimension:** Single**Description:** The number of IPv6 Alternate Key Records removed by audit during the reporting interval.**Collection Interval:** 5 min**Peg Condition:** This peg is incremented by one each time an Ipv6AlternateKey record is removed by audit.**Measurement Scope:** All**Recovery:**

No action necessary.

**SbrMsisdnRecsAudited****Measurement Group:** SBR Audit**Measurement Type:** Simple**Measurement Dimension:** Single**Description:** The number of MSISDN Alternate Key Records audited during the reporting interval.**Collection Interval:** 5 min**Peg Condition:** This peg is incremented by one each time an MsisdnAlternateKey record is audited.**Measurement Scope:** All**Recovery:**

No action necessary.

**SbrMsisdnRecsRemoved****Measurement Group:** SBR Audit**Measurement Type:** Simple**Measurement Dimension:** Single



**Description:** The number of MSISDN Alternate Key Records removed by audit during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time an MsisdnAlternateKey record is removed by audit.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrImsiRecsRemoved

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of IMSI Anchor Key Records removed by audit during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time an ImsiAnchorKey record is removed by audit.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrImsiSrRemovedByAudit

**Event Group:** SBR Audit

**Description:** A count of the number of IMSI binding sessionRefs removed by the binding audit.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval** 5 min

**Peg Condition:** Each time the binding audit decides to remove an IMSI binding sessionRef due the following conditions:

- PCRF Pooling is Enabled AND
  - The binding sessionRef has been in the database for at least 30 seconds AND
  - The binding sessionRef has no corresponding session in the session database

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the number of IMSI bindings that for some reason were not removed when the associated Diameter session either failed or was terminated via signaling. This unexpected condition could occur if binding pSBR congestion load shedding prevented removal of the sessionRef from the binding record.
2. Contact [My Oracle Support \(MOS\)](#).

### SbrMsisdnSrRemovedByAudit

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** A count of the number of MSISDN binding sessionRefs removed by the binding audit.

**Collection Interval** 5 min

**Peg Condition:** Each time the binding audit decides to remove an MSISDN sessionRef because the binding sessionRef has no corresponding session in the session database.

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the number of MSISDN bindings that for some reason were not removed when the associated Diameter session either failed or was terminated via signaling. This unexpected condition could occur if binding pSBR congestion load shedding prevented removal of the sessionRef from the binding record.
2. Contact [My Oracle Support \(MOS\)](#).

### SbrOcSessionsAudited

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Online Charging sessions audited.

**Collection Interval:** 5 min

**Peg Condition:** Each time an Online Charging session record is audited.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrOcSessionsRemovedByAudit

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Online Charging sessions that were removed by an audit.

**Collection Interval:** 5 min

**Peg Condition:** Each time an Online Charging session is removed by an audit because it was considered to be stale (i.e., session's age exceeds the configured Stale Session Timeout value).

**Measurement Scope:** All

**Recovery:**

1. This measurement represents a condition in which Online Charging sessions which have not seen any activity for a duration exceeding the configured Stale Session Timeout value are deleted by an audit. Online Charging session's last touch timestamp is updated for each time it is access for routing Credit-Control-Request messages with CC-Request-Type AVP set to UPDATE\_REQUEST (CCR-U) and Re-Auth-Request (RAR) messages.
2. Stale Session Timeout values are configurable on a per APN basis. Verify that the Stale Session Timeout values are properly configured by selecting **Main Menu > Policy and Charging > Configuration > Access Point Names** on the NOAMP GUI.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## SbrAcceleratedMigrationSessionsTargeted

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of binding capable sessions scheduled for removal due to Accelerated Migration.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented during SBR audits of the ImsiApnAnchorKey and Session tables as follows:

- A binding database reconfiguration is in the Accelerate administrative state and the binding audit finds an IMSI record that was placed using the Creation Signature for the Initial Resource Domain or SBR Database. The measurement is incremented once for each sessionRef in the record when the invokeSessionIntegrityService stack event is sent to request removal of the binding capable session.
- A session database reconfiguration is in the Accelerate administrative state and the session audit finds a binding capable Session record that was placed using the Creation Signature for the Initial Resource Domain or SBR Database. The measurement is incremented once when the Session Integrity Service is invoked to remove the binding capable session.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

This measurement is only used when the network operator chooses to accelerate an SBR Reconfiguration Plan. The count indicates the number of sessions that were removed or requested to be removed from a Policy DRA binding or session database or an Online Charging DRA session database as a result of the accelerated migration.

For a Policy DRA binding or session database reconfiguration, accelerated migration causes each non-migrated binding capable session to be scheduled for removal using the Session Integrity capability of PCA. An RAR message including a Session-Release-Cause AVP will be sent for each non-migrated session. If the policy client responds by sending an RAA followed by a CCR-T, the session will be removed from the P-DRA. When the policy client reestablishes the session, the record will be successfully migrated.

For an Online Charging DRA session database reconfiguration, accelerated migration causes each non-migrated Gy/Ro session to be removed, possibly resulting in signaling failures which should cause the CTF to reestablish the sessions and thereby cause them to be successfully migrated.

### TxSbrAuditSEReqSent

**Measurement Group:** SBR Audit

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Binding Audit stack events sent to Session servers.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented during SBR audits of the ImsiApnAnchorKey, MsisdnApnAlternateKey, Ipv4AlternateKeyV2, Ipv6AlternateKeyV2 tables each time a FindSessionRef stack event is sent for a session reference in the binding table being audited to the corresponding session SBR server.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

No action required. This measurement is informational only.

### TxSbrAuditSEReqSentRateAvg

**Measurement Group:** SBR Audit

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average number of Binding Audit stack events sent per second to Session servers in the selected time interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement accumulates the average rate (per second) of FindSessionRef stack events sent for session references in binding tables being audited.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

No action required. This measurement is informational only.

## TxSbrAuditSEReqSentRatePeak

**Measurement Group:** SBR Audit

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum number of Binding Audit stack events sent per second to Session servers in the selected time interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement accumulates the peak rate (per second) of FindSessionRef stack events sent for session references in binding tables being audited.

**Measurement Scope:** Network, Place Association, Resource Domain

**Recovery:**

No action required. This measurement is informational only.

## SBR Binding Performance measurements

The SBR Binding Performance measurement report contains measurements that provide performance information that is specific to the SBR Binding Database.

**Table 70: SBR Binding Performance Measurement Report Fields**

Measurement Tag	Description	Collection Interval
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

Measurement Tag	Description	Collection Interval
SbrAvgBindingAgeAtTerm	The average binding (final) age when binding is terminated due to termination of all associated sessions	5 min
SbrAvgBindingDbRead	The average rate of Binding database reads per second	5 min
SbrMaxBindingDbRead	The maximum rate of Binding database reads	5 min
SbrAvgBindingDbWrite	The average rate of Binding database writes per second	5 min
SbrMaxBindingDbWrite	The maximum rate of Binding database writes	5 min
SbrLockCollisions	The number of collisions that occurred periodically while acquiring a lock	5 min
TmSbrProcessingTime	The time (in microseconds) to process an event on SBR. The measurement is to measure the average time (ms) taken for SBR to process the stack event received from P-DRA and send back the stack event response to P-DRA	5 min
SbrEarlySlaveBindingsCreated	The number of binding capable session initiation requests that were treated as slaves of an existing early binding	5 min
SbrFinalBindingsFollowed	The number of binding capable session initiation requests that matched a final binding and were routed using the bound PCRF	5 min
SbrSlavePollingContinue	The number of early binding polling attempts for which the poller was instructed to continue polling	5 min
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

Measurement Tag	Description	Collection Interval
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

### SbrNewBindingsCreated

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of new bindings created.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a new binding is created.

**Measurement Scope:** Place Association

**Recovery:**

No action necessary.

### SbrUpdatedBindings

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of existing bindings updated but not deleted, i.e. the Session Reference removed is not the last one

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever an existing binding is updated.

**Measurement Scope:** Place Association

**Recovery:**

No action necessary.

### **SbrBindTermByAscSess**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number bindings (final) terminated due to termination of all associated sessions.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a binding is terminated due to termination of all associated sessions.

**Measurement Scope:** Place Association

**Recovery:**

No action necessary.

### **SbrAltKeyCreated**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of alternate key records created.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever an alternate key record is created.

**Measurement Scope:** Place Association

**Recovery:**

No action necessary.

### **SbrAltKeyDel**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of alternate key records removed.

**Collection Interval:** 5 min



**Peg Condition:** This peg is updated whenever an alternate key record is deleted.

**Measurement Scope:** Place Association

**Recovery:**

No action necessary.

### **SbrMaxBindingAgeAtTerm**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum binding (final) age when binding is terminated due to termination of all associated sessions.

**Collection Interval:** 5 min

**Peg Condition:** The time interval starts when the binding becomes final and stops when binding is terminated due to termination of all associated sessions.

**Measurement Scope:** Place Association

**Recovery:**

No action necessary.

### **SbrAvgBindingAgeAtTerm**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average binding (final) age when binding is terminated due to termination of all associated sessions.

**Collection Interval:** 5 min

**Peg Condition:** The time interval starts when the binding becomes final and stops when binding is terminated due to termination of all associated sessions.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrAvgBindingDbRead**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average rate of Binding database reads per second

**Collection Interval:** 5 min

**Peg Condition:** It is calculated based on the total number of sampled binding database reads during the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrMaxBindingDbRead

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum rate of Binding database reads

**Collection Interval:** 5 min

**Peg Condition:** At the end of each sample period associated with the average binding database reads, if the maximum value exceeds the current value of this measurement, then the measurement will be updated with the current sample periods value.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrAvgBindingDbWrite

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average rate of Binding database writes per second

**Collection Interval:** 5 min

**Peg Condition:** It is calculated based on the total number of sampled binding database writes during the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrMaxBindingDbWrite

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum rate of Binding database writes

**Collection Interval:** 5 min

**Peg Condition:** At the end of each sample period associated with the average binding database writes, if the maximum value exceeds the current value of this measurement, then the measurement will be updated with the current sample periods value.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrLockCollisions

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** The number of collisions that occurred periodically while acquiring a lock

**Collection Interval:** 5 min

**Peg Condition:** Each time a collision occurs while acquiring a lock

**Measurement Scope:** All

**Recovery:**

No action necessary.

### TmSbrProcessingTime

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** The time (in microseconds) to process an event on SBR. The measurement is to measure the average time (ms) taken for SBR to process the stack event received from P-DRA and send back the stack event response to P-DRA.

**Collection Interval:** 5 min

**Peg Condition:** Each time a stack event is received from P-DRA and is sent back the response to P-DRA

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrEarlySlaveBindingsCreated

**Event Group:** SBR Binding Performance

**Description:** The number of binding capable session initiation requests that were treated as slaves of an existing early binding. This gives an indication of the frequency at which the early binding logic is being executed.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval** 5 min

**Peg Condition:** Each time a binding capable session initiation request is received and all of the following conditions are true:

- The CCR-I matches an existing binding that is in the Early state (i.e. there exists an EarlyMaster sessionRef for the IMSI and APN, or IMSI and PCRF Pool)
- The existing EarlyMaster sessionRef has not been in existence for longer than the Maximum Early Binding Lifetime configured in **Policy DRA > Configuration > Network-Wide Options**
- PCRF Pooling is Enabled

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the frequency at which the early binding mechanism is being exercised.
2. Contact [My Oracle Support \(MOS\)](#).

## SbrFinalBindingsFollowed

**Event Group:** SBR Binding Performance

**Description:** The number of binding capable session initiation requests that matched a final binding and were routed using the bound PCRF.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval** 5 min

**Peg Condition:** Each time a binding capable session initiation request is received and all of the following conditions are true:

- The CCR-I matches an existing binding that is in the Final state (i.e. there exists a Final sessionRef for the IMSI and APN, or IMSI and PCRF Pool)
- PCRF Pooling is Enabled

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the frequency at which binding capable session initiation requests are routed according to existing bindings.
2. Contact [My Oracle Support \(MOS\)](#).

## SbrSlavePollingContinue

**Measurement Group:** SBR Binding Performance

**Description:** A count of the number of early binding polling attempts for which the poller was instructed to continue polling.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval** 5 min

**Peg Condition:** Each time an Early Binding Slave session polls the Early Binding Master and all of the following conditions are true:

- The Early Binding Master sessionRef still exists in the binding database and is in the EarlyMaster state.
- The Early Binding Slave sessionRef still exists in the binding database
- The Early Binding Master sessionRef has not been in existence for longer than the Maximum Early Binding Lifetime
- PCRF Pooling is Enabled

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the frequency at slave pollers are asked to continue polling. If this value is equal to or higher than the [SbrEarlySlaveBindingsCreated](#), the Early Binding Polling Interval configured in **Policy DRA > Configuration > Network-Wide Options** may be set to a duration too short, causing unnecessary polling attempts. If this value is very low relative to the [SbrEarlySlaveBindingsCreated](#), the Early Binding Polling Interval may be set to a duration too long, causing unnecessary latency for slave sessions.
2. Contact [My Oracle Support \(MOS\)](#).

## SbrSlavePollingRouteToPcrf

**Measurement Group:** SBR Binding Performance

**Description:** A count of the number of early binding polling attempts for which the poller was instructed to route the request to a bound PCRF.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval** 5 min

**Peg Condition:** Each time an Early Binding Slave session polls the Early Binding Master and all of the following conditions are true:

- The Early Binding Master sessionRef still exists in the binding database and is in the Final state.
- The Early Binding Slave sessionRef still exists in the binding database
- PCRF Pooling is Enabled

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the Early Binding Slave sessions whose master sessionRefs became Final and were therefore routed using the bound PCRF. If this value is lower than the [SbrEarlySlaveBindingsCreated](#) value, check the SBR Binding Exception measurement report for measurement [SbrSlavePollingFail](#).
2. Contact [My Oracle Support \(MOS\)](#).

**SbrPolicyBindingRecsAvg**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average number of active SBR Binding sessions

**Collection Interval:** 5 min

**Peg Condition:** The average of all SBR Policy Binding Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** All

**Recovery:**

No action necessary.

**SbrPolicyBindingRecsPeak**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Maximum

**Measurement Dimension:** Single

**Description:** The maximum number of active SBR Binding sessions

**Collection Interval:** 5 min

**Peg Condition:** The maximum of all SBR Policy Binding Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** All

**Recovery:**

No action necessary.

**EvSuspectBindingEventIgnored**

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Suspect Binding events that were ignored because they arrived within the Ignore Interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time a Suspect Binding Removal event is received within the "Suspect Binding Removal Events Ignore Interval" from the last counted suspect binding removal event.

**Measurement Scope:** All

**Recovery:**

Modify the "Suspect Binding Removal Events Ignore Interval" value in **Policy and Charging > Configuration > Policy DRA > Network-Wide Options** if the measurement becomes too large.

## EvSuspectBindingEventCountReset

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of times a Suspect Binding event resets the Suspect Binding Count because it arrived after the Reset Interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time 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.

**Measurement Scope:** All

**Recovery:**

Adjust the "Suspect Binding Removal Events Reset Interval" value in **Policy and Charging > Configuration > Policy DRA > Network-Wide Options** if necessary.

## EvSuspectBindingRemoved

**Measurement Group:** SBR Binding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Remove Immediately, Threshold Exceeded, Total)

**Description:** The number of times a Suspect Binding was removed by a Remove Immediately Suspect Binding Event or if a Suspect Binding Event Count exceeded the configured "Suspect Binding Removal Events Threshold" value.

**Collection Interval:** 5 min

**Peg Condition:** Each time the binding SBR receives a request from DA-MP to "remove" a suspect binding immediately, or if the Suspect Binding Count for any SessionRef record exceeds the Suspect Binding Removal Events Threshold value.

**Note:** This measurement is pegged twice, once for any reason listed above, and once for "Total."

**Measurement Scope:** All

**Recovery:**

Adjust the "Suspect Binding Removal Events Threshold" value in **Policy and Charging > Configuration > Policy DRA > Network-Wide Options** if an unusually large number of measurements occur in a very short time period.

## SBR Binding Exception measurements

The SBR Binding Exception measurement report contains measurements that provide performance information that is specific to the SBR Binding Database.

**Table 71: SBR Binding Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
SbrCreateBindDbErr	The number of errors creating a binding record.	5 min
SbrUpdateBindDbErr	The number of errors updating a binding record.	5 min
SbrRemoveBindDbErr	The number of errors removing a suspect binding record	5 min
SbrCreateAltKeyDbErr	The number of errors creating an alternate key record.	5 min
SbrRemoveAltKeyDbErr	The number of errors removing an alternate key record.	5 min
SbrFindBindDbErr	The number of errors when encountered for finding a binding record.	5 min
SbrEarlyTooLongSrRemoved	The number of sessionRefs found to be in the EarlyMaster or EarlySlave state for too long	5 min
SbrSlavePollingFail	The number of binding capable session initiation requests that were not routed due to polling failures	5 min
SbrSuspectSrRemoved	The number of binding sessionRefs removed as a result of the Suspect Binding mechanism	5 min

### SbrCreateBindDbErr

**Measurement Group:** SBR Binding Exception

**Measurement Type:** Simple



**Measurement Dimension:** Single

**Description:** The number of errors creating a binding record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in creating a binding record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrUpdateBindDbErr**

**Measurement Group:** SBR Binding Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors updating a binding record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in updating a binding record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrRemoveBindDbErr**

**Measurement Group:** SBR Binding Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors removing a suspect binding record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in removing a suspect binding record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrCreateAltKeyDbErr**

**Measurement Group:** SBR Binding Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors creating an alternate key record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in creating an alternate key record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrRemoveAltKeyDbErr

**Measurement Group:** SBR Binding Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors removing an alternate key record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in removing an alternate key record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrFindBindDbErr

**Measurement Group:** SBR Binding Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors when encountered for finding a binding record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in finding a binding record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrEarlyTooLongSrRemoved

**Event Group:** SBR Binding Exception

**Description:** A count of the number of sessionRefs found to be in the EarlyMaster or EarlySlave state for longer than the Maximum Early Binding Lifetime.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval** 5 min

**Peg Condition:** Each time sessionRef is discovered that has been in an early state (i.e. EarlyMaster or EarlySlave) for longer than the Maximum Early Binding Lifetime and the following conditions are true:

- PCRF Pooling is Enabled AND
  - A binding capable session initiation request is received that matches an existing binding and the binding has been in the EarlyMaster state for longer than the Maximum Early Binding Lifetime OR
  - A binding capable session initiation request is received and no slots are available for new sessionRefs, but at least one sessionRef has been in the EarlySlave state for longer than the Maximum Early Binding Lifetime OR
  - A slave session polls a master sessionRef that has been in the EarlyMaster state for longer than the Maximum Early Binding Lifetime

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the frequency at which binding sessionRefs are discovered in an early state for longer than expected. This unexpected condition could occur if the Maximum Early Binding Lifetime value is configured to be nearly equal to or shorter than the Diameter transaction timer. It could also occur if the binding pSBR was in congestion and load shedding prevented the session from being transitioned from the early state to a final state. In either case the "stuck" sessionRef is removed, preventing it from disrupting further signaling.
2. Contact [My Oracle Support \(MOS\)](#).

## SbrSlavePollingFail

**Event Group:** SBR Binding Exception

**Description:** The number of binding capable session initiation requests that were not routed to polling failures. This includes the following: slave sessionRef not found, master sessionRef, master sessionRef found, but existed for longer than the Maximum Early Binding Lifetime.

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Collection Interval** 5 min

**Peg Condition:** Each time an Early Binding Slave session polls the Early Binding master and the following conditions are met:

- PCRF Pooling is Enabled AND
  - The Early Binding Master sessionRef no longer exists in the binding database OR
  - The Early Binding Slave sessionRef no longer exists in the binding database OR
  - The Early Binding Master sessionRef exists in the binding database in the EarlyMaster state, but has been in existence for longer than the Maximum Early Binding Lifetime

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the Early Binding Slave sessions whose polling attempts did NOT result in a final binding to route towards. Each time this measurement is pegged, P-DRA generates an error answer message using the Binding Found But Unable To Route Diameter result code. The Error-Message AVP contains a 3-digit code that indicates the specific reason for the failure.
2. Contact [My Oracle Support \(MOS\)](#).

## SbrSuspectSrRemoved

**Measurement Group:** SBR Binding Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** A count of the number of binding sessionRefs removed as a result of the Suspect Binding mechanism.

**Collection Interval** 5 min

**Peg Condition:** Each time a binding sessionRef is removed by the suspect binding mechanism (i.e. due to inaccessability of a PCRF for more than 30 seconds while signaling attempts are being performed).

**Measurement Scope:** Network Element, Server Group, Resource Domain, Place, Place Association

**Recovery:**

1. This measurement gives an indication of the number of binding sessionRefs that were automatically removed from the Policy DRA binding database as a result of continued inability to route binding capable session initiation requests to a given PCRF.
2. 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 72: 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	5 min

Measurement Tag	Description	Collection Interval
	created and the time when it is successfully terminated.	
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
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

Measurement Tag	Description	Collection Interval
RxInvokeSisPerRarType	Number of times that the Session Integrity Service received a request to invoke the Session Integrity Service for each RAR type.	5 min
TxInvokeSisResultPerResultCode	Number of times that the Session Integrity Service was invoked per result type.	5 min

### SbrSessionsCreated

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of new sessions created.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a new session is created.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrSessionsRefresh

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of existing sessions refreshed.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever an existing session is refreshed.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrSessionsDeleted

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of sessions removed.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever a session is deleted.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrAvgSessionAgeTermPerAPN

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by APN ID)

**Description:** The average time interval (in hours) per APN between the time when a session record is created and the time when it is successfully terminated.

**Collection Interval:** 5 min

**Peg Condition:** The time interval starts when a session record is created as a result of createSession stack event and stops when the session record is terminated successfully as a result of removeSession stack event

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrMaxSessionAgeTermPerAPN

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by APN ID)

**Description:** The maximum time interval (in hours) per APN between the time when a session record is created and the time when it is successfully terminated.

**Collection Interval:** 5 min

**Peg Condition:** The time interval starts when a session record is created as a result of createSession stack event and stops when the session record is terminated successfully as a result of removeSession stack event

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrAvgSessionDbRead

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average rate of Session database reads per second

**Collection Interval:** 5 min

**Peg Condition:** It is calculated based on the total number of sampled session database reads during the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrMaxSessionDbRead

**Measurement Group:** SBR Session Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum rate of Session database reads

**Collection Interval:** 5 min

**Peg Condition:** At the end of each sample period associated with the average session database reads, if the maximum value exceeds the current value of this measurement, then the measurement will be updated with the current sample periods value

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrAvgSessionDbWrite

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average rate of session database writes per second

**Collection Interval:** 5 min

**Peg Condition:** It is calculated based on the total number of sampled session database writes during the collection interval.

**Measurement Scope:** All



**Recovery:**

No action necessary.

**SbrMaxSessionDbWrite**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum rate of session database writes

**Collection Interval:** 5 min

**Peg Condition:** At the end of each sample period associated with the average session database writes, if the maximum value exceeds the current value of this measurement, then the measurement will be updated with the current sample periods value.

**Measurement Scope:** All

**Recovery:**

No action necessary.

**SbrPendingRarLockCollisions**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed

**Description:** The number of collisions occurred periodically while acquiring a lock to update PendingRar table.

**Collection Interval:** 5 min

**Peg Condition:** Each time a collision occurs while acquiring a lock to update PendingRar table.

**Measurement Scope:** All

**Recovery:**

No action necessary.

**SbrPolicySessionRecsAvg**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average number of active SBR Policy sessions

**Collection Interval:** 5 min

**Peg Condition:** The average of all SBR Policy Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrPolicySessionRecsPeak

**Measurement Group:** SBR Session Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum number of active SBR Policy sessions.

**Collection Interval:** 5 min

**Peg Condition:** The maximum of all SBR Policy Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrOcSessionsCreated

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of new Online Charging sessions created.

**Collection Interval:** 5 min

**Peg Condition:** Each time a new Online Charging session is successfully created.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrOcSessionsRefreshed

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of new Online Charging sessions refreshed

**Collection Interval:** 5 min

**Peg Condition:** Each time a new Online Charging session is successfully refreshed.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## **SbrOcSessionsRemoved**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of new Online Charging sessions removed.

**Collection Interval:** 5 min

**Peg Condition:** Each time a new Online Charging session is successfully removed.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## **SbrAvgOcSessionDbReads**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average rate of Online Charging Session database reads per second.

**Collection Interval:** 5 min

**Peg Condition:** The average of all the SBR Online Charging Session DB Read Rate KPI samples taken during the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## **SbrMaxOcSessionDbReads**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum rate of Online Charging Session database reads per second.

**Collection Interval:** 5 min

**Peg Condition:** The maximum of all the SBR Online Charging Session DB Read Rate KPI samples taken during the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrAvgOcSessionDbWrites**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average rate of Online Charging Session database writes per second.

**Collection Interval:** 5 min

**Peg Condition:** The average of all the SBR Online Charging Session DB Write Rate KPI samples taken during the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrMaxOcSessionDbWrites**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum rate of Online Charging Session database writes per second.

**Collection Interval:** 5 min

**Peg Condition:** The maximum of all the SBR Online Charging Session DB Write Rate KPI samples taken during the collection interval.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### **SbrAvgOcSessionAgeTermPerApn**

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by APN ID)

**Description:** The average time (in hours) per APN between the time when an Online Charging session is created and the time when it is successfully terminated.

**Collection Interval:** 5 min

**Peg Condition:** The average time interval for each Online Charging session starts when a session record is created as a result of createOcSession stack event and stops when the session record is terminated successfully as a result of removeOcSession stack event.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrMaxOcSessionAgeTermPerApn

**Measurement Group:** SBR Session Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by APN ID)

**Description:** The maximum time (in hours) per APN between the time when an Online Charging session is created and the time when it is successfully terminated.

**Collection Interval:** 5 min

**Peg Condition:** The maximum time interval for each Online Charging session starts when a session record is created as a result of createOcSession stack event and stops when the session record is terminated successfully as a result of removeOcSession stack event.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrOcSessionRecsAvg

**Measurement Group:** SBR Session Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average number of active SBR Online Charging sessions

**Collection Interval:** 5 min

**Peg Condition:** The average of all SBR Online Charging Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** All

**Recovery:**

No action necessary.

## SbrOcSessionRecsPeak

**Measurement Group:** SBR Session Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum number of active SBR Online Charging sessions

**Collection Interval:** 5 min

**Peg Condition:** The maximum of all SBR Online Charging Session Records KPI samples taken during the collection interval (refer to the *DSR Alarms and KPIs Reference* for details about this KPI).

**Measurement Scope:** All

**Recovery:**

No action necessary.

## RxInvokeSisPerRarType

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Query, Release NoSessionRef, Release NoSessionId, Release DupSessionRef, Release DuplicateSession, Release CreateSessionRefFail, Release CreateSessionFail, Release CreateIpv4AltKeyFail, Release CreateIpv6AltKeyFail, Release CreateMsisdnAltKeyFail, Release PcrfNotConfig, Release UpdateBindingFail, Release CreateSessionNotSent, Release CreateBindingNotSent, Release SuspectRuleImmediate Release SuspectRuleThreshold, and RAR Total)

**Description:** The number of times that the Session Integrity Service received a request to invoke the Session Integrity Service for each RAR type.

**Collection Interval:** 5 min

**Peg Condition:** Each time a request is received to invoke the Session Integrity Service via invokeSessionIntegrityService stack event for each RAR type.

**Note:** There will be a separate array value for each type of release.

**Note:** This measurement is pegged twice, once for RAR types and once for "Total."

**Measurement Scope:** All

**Recovery:**

No action required.

## TxInvokeSisResultPerResultCode

**Measurement Group:** SBR Session Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Success, Missing SessionRef, SessionRef Not Found, Session Not Found, PolicyClientHost Not Found, Invalid RAR Type, Pending Query RAR Queue Full, Pending Release RAR Queue Full, Unexpected DB Error, and Total)

**Description:** The number of times that the Session Integrity Service was invoked per result type.

**Collection Interval:** 5 min

**Peg Condition:** Each time the invokeSessionIntegrityServiceResult response is sent out. The array element corresponding to the given result will be pegged.

**Note:** This measurement is pegged twice, once for result type and once for "Total."

**Measurement Scope:** All

**Recovery:**

Modify the "Query RAR Queue Capacity Per Session Server Group" or "Release RAR Queue Capacity Per Session Server Group" in **Policy and Charging > Configuration > Policy DRA > Network-Wide Options**.

## SBR Session Exception measurements

The Session Binding Repository (SBR) Session Exception measurement report contains measurements that provide performance information that is specific to the SBR Session Database.

**Table 73: SBR Session Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
SbrCreateSessDbErr	Number of errors creating a session record	5 min
SbrRefreshSessDbErr	Number of errors refreshing a session record	5 min
SbrRemSessDbErr	Number of errors terminating a session record	5 min
SbrFindSessDbErr	Number of errors when encountered for finding a session record	5 min
SbrRemSessRarAttempts	Number of sessions removed as a result of no response being received in 8 consecutive attempts to query the policy client for existence of the session	5 min
SbrCreateOcSessionDbErr	Number of Online Charging session creation errors	5 min
SbrFindOcSessionDbErr	Number of Online Charging session query errors	5 min
SbrOcSessionNotFound	Number of Online Charging sessions not found	5 min
SbrRefreshOcSessionDbErr	Number of Online Charging session refresh errors	5 min
SbrRemoveOcSessionDbErr	Number of Online Charging session removal errors	5 min

Measurement Tag	Description	Collection Interval
TxPendingRarDeleteExcdMax	Number of pending RARs(Query or Release) that have been removed due to exceeding the maximum send attempts allowed per Query or Release RAR.	5 min

### SbrCreateSessDbErr

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors creating a session record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in creating a session record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrRefreshSessDbErr

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors refreshing a session record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in refreshing a session record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrRemSessDbErr

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors terminating a session record.

**Collection Interval:** 5 min



**Peg Condition:** This peg is updated whenever there is an error in terminating a session record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## **SbrFindSessDbErr**

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of errors when encountered for finding a session record.

**Collection Interval:** 5 min

**Peg Condition:** This peg is updated whenever there is an error in finding a session record.

**Measurement Scope:** All

**Recovery:**

No action necessary.

## **SbrRemSessRarAttempts**

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of sessions removed as a result of no response being received in 8 consecutive attempts to query the policy client for existence of the session.

**Collection Interval:** 5 min

**Peg Condition:** This peg is incremented by one each time a session is removed due to lack of response after the maximum number of attempts to query the policy client have been attempted.

**Measurement Scope:** Network

**Recovery:**

1. A non-zero value in this field may indicate that a policy client has become inaccessible after creating Diameter sessions on the Policy DRA.
2. If a policy client was purposely removed from service, please disregard this measurement.

## **SbrCreateOcSessionDbErr**

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Online Charging session creation errors.

**Collection Interval:** 5 min

**Peg Condition:** Each time a failure is encountered in creating an Online Charging Session record in the SBR Session database. Online Charging Session record failures include:

- Online Charging Session record already exists (i.e. retransmission)
- Database Access Failure

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrFindOcSessionDbErr

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Online Charging session query errors.

**Collection Interval:** 5 min

**Peg Condition:** Each time a failure is encountered in finding an Online Charging Session record in the SBR Session database.

**Measurement Scope:** All

**Recovery:**

No action necessary.

### SbrOcSessionNotFound

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Online Charging sessions not found.

**Collection Interval:** 5 min

**Peg Condition:** Each time an Online Charging session record is not found in the SBR Session database.

**Measurement Scope:** All

**Recovery:**

No action necessary.

**SbrRefreshOcSessionDbErr**

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Online Charging session refresh errors.

**Collection Interval:** 5 min

**Peg Condition:** Each time there is a failure in refreshing an Online Charging session record in the SBR Session database.

**Measurement Scope:** All

**Recovery:**

No action necessary.

**SbrRemoveOcSessionDbErr**

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of Online Charging session removal errors.

**Collection Interval:** 5 min

**Peg Condition:** Each time there is a failure in deleting an Online Charging Session record from the SBR Session database.

**Measurement Scope:** All

**Recovery:**

No action necessary.

**TxPendingRarDeletedExceedMax**

**Measurement Group:** SBR Session Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Query, Release, and Total)

**Description:** The number of pending RARs (Query or Release) that have been removed due to exceeding the maximum send attempts allowed per Query or Release RAR.

**Collection Interval:** 5 min

**Peg Condition:** Each time a RAR entry in the queue/table is removed for exceeding the maximum attempts value. This measurement is incremented by one for each Query or Release RAR entry removed due to exceeding the maximum Send Attempts per Query or Release RAR value.

**Measurement Scope:** All

**Recovery:**

Modify the "Maximum Attempts Per Query RAR" or "Maximum Attempts Per Release RAR" in **Policy and Charging > Configuration > Policy DRA > Network-Wide Options**.

## Server Exception measurements

Measurement Tag	Description	Collection Interval
EvError	Number of normal errors encountered	30 min
EvVital	Number of severe errors encountered	30 min

### EvError

**Measurement Group:** Server Exception

**Measurement Type:** Simple

**Description:** The number of error trace conditions. This indicates that an expected but abnormal path was taken in the software, which warrants further investigation.

By default, error tracing is disabled. Non-zero values in this measurement indicate that something is occurring that would have generated an error trace, were error tracing enabled. These error trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

Contact [My Oracle Support \(MOS\)](#) for assistance if any unexpected non-zero values in this measurement occur.

### EvVital

**Measurement Group:** Server Exception

**Measurement Type:** Simple

**Description:** The number of vital trace conditions encountered. A vital trace indicates that an unexpected path was taken in the software, which warrants further investigation. These vital trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events.

During application start-up and shutdown, vital traces are used to show details that can aid in debugging of initialization and shutdown problems. These traces are always enabled and cannot be turned off.

It is a VITAL error condition for any other instance.

**Collection Interval:** 30 min

**Measurement Scope:** 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 74: 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
M3UAShutdownQueueFull	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
ANSIDiscardsNoPDUBuffer	ANSI ingress message discarded: no PDU buffer.	30 min
ITUDiscardsNoPDUBuffer	The number of ingress messages that were discarded because no	30 min

Measurement Tag	Description	Collection Interval
	ITU/ITUN PUD Buffers were available.	

## TxM3uaERROR

**Measurement Group:** Server M3UA Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of M3UA ERROR messages sent by the MP server. M3UA ERROR message are sent to inform the originator of an M3UA message that the message cannot be processed due to some problem with the message syntax or semantics.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an ERROR message is sent.

**Measurement Scope:** NE, Server

**Recovery:**

1. If all is well this measurement will have a zero value. If this measurement has a non-zero value, review the event history in the GUI under **Alarms & Events>View History**. Look for **Event ID 19231**.  
**Event ID 19231** 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

**Measurement Group:** Server M3UA Exception

**Measurement Type:** Simple

**Description:** The number of times M3UA ERROR messages are received by the MP server. M3UA ERROR messages are sent to inform the originator of an M3UA message that the message cannot be processed because of a problem with the message syntax or semantics.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time an ERROR message is received.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement should have a zero value. If the value is non-zero, view the event history from the GUI main menu under **Alarms & Events>View History** and look for **Event ID 19235**.
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

**Measurement Group:** Server M3UA Exception

**Measurement Type:** Simple

**Description:** The number of messages that were discarded because the M3UA Stack Event Queue was full. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 30 min

**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

**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:** For each SCTP Aggregate Association Writer Queue message 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 Group:** Server M3UA Exception

**Measurement Type:** Simple

**Description:** The number of ingress ANSI messages that were discarded because no ANSI PDU Buffers were available.

**Collection Interval:** 30 min

**Peg Condition:** For each ANSI message discarded

**Measurement Scope:** NE, Server

**Recovery:**

1. If this measurement is greater than zero, a network (IP or SS7) problem might exist or an MP-specific software problem may exist (for example, a buffer pool leak).
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## ITUDiscardsNoPDUBuffer

**Measurement Group:** Server M3UA Exception

**Measurement Type:** Simple

**Description:** The number of ingress messages that were discarded because no ITUI/IITUN PDU Buffers were available.

**Collection Interval:** 30 min

**Peg Condition:** For each ITUI message discarded

**Measurement Scope:** NE, Server

**Recovery:**

1. If this measurement is greater than zero, a network (IP or SS7) problem might exist or an MP-specific software problem might exist (for example, a buffer pool leak).
2. If the problem persists, contact [My Oracle Support \(MOS\)](#).



## Server M3UA Performance measurements

**Table 75: Server M3UA Performance Measurement Report Fields**

Measurement Tag	Description	Collection Interval
TxNonDataMsg	Non-DATA messages sent by the MP server. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release.	30 min
RxNonDataMsg	Non-DATA messages received by the MP server. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, MGMT, SSNM). RKM messaging is not supported in this release.	30 min
TxNonDataOctets	Non-DATA octets sent by the MP server. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release. SCTP, IP, and Ethernet headers are not included in the octet counts.	30 min
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 Network Management Event Queue utilization (0-100%) measured during the collection interval.	30 min
SCTPAggrQueuePeak	Peak SCTP Aggregate Association Writer Queue	30 min

Measurement Tag	Description	Collection Interval
	utilization (0-100%) measured during the collection interval.	
SCTPAggrQueueAvg	Average of all SCTP Aggregate Association Writer Queue utilization samples taken during the collection interval.	30 min

## TxNonDataMsg

**Measurement Group:** Server M3UA Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** This measurement gives the level of non-DATA M3UA signaling that occurred on the MP server during the reporting period. The count includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release.

**Collection Interval:** 30 min, Daily

**Peg Condition:** This measurement is incremented by one each time any of the following occur:

- An ASP-UP message is sent.
- An ASP-DOWN message is sent.
- An ASP-ACTIVE message is sent.
- An ASP-INACTIVE message is sent.
- An ERROR message is sent.
- A DAUD message is sent.
- A BEAT message is sent.
- A BEAT-ACK message is sent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxNonDataMsg

**Measurement Group:** Server M3UA Performance

**Measurement Type:** Simple

**Description:** This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, MGMT, SSNM). RKM messaging is not supported in this release.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time any of the following occur:

- An ASP-UP-ACK message is received
- An ASP-DOWN-ACK message is received

- An ASP-ACTIVE-ACK message is received
- An ASP-INACTIVE-ACK message is received
- An ERROR message is received
- A DUNA message is received
- A DAVA message is received
- A DRST message is received
- A SCON message is received
- A DUPU message is received
- A BEAT message is received
- A BEAT-ACK message is received
- A NOTIFY message is received

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## TxNonDataOctets

**Measurement Group:** Server M3UA Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** This measurement gives the number of octets of non-DATA M3UA signaling that occurred on the MP server during the reporting period. The count includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, ERROR, DAUD). RKM messaging is not supported in this release. SCTP, IP, and Ethernet headers are not included in the octet counts.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by the number of octets in the message (not including SCTP, IP, or Ethernet headers) each time any of the following occur:

- An ASP-UP message is sent.
- An ASP-DOWN message is sent.
- An ASP-ACTIVE message is sent.
- An ASP-INACTIVE message is sent.
- An ERROR message is sent.
- A DAUD message is sent.
- A BEAT message is sent.
- A BEAT-ACK message is sent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxNonDataOctets

**Measurement Group:** Server M3UA Performance

**Measurement Type:** Simple

**Description:** This measurement gives the number of octets of non-DATA M3UA signaling occurring on the MP server during the reporting period. This includes all non-DATA M3UA messages (i.e., ASPSM, ASPTM, MGMT, SSNM). RKM messaging is not supported in this release. SCTP, IP, and Ethernet headers are not included in the octet counts.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by the number of octets in the message (not including SCTP, IP, or Ethernet headers) each time any of the following occur:

- An ASP-UP-ACK message is received
- An ASP-DOWN-ACK message is received
- An ASP-ACTIVE-ACK message is received
- An ASP-INACTIVE-ACK message is received
- An ERROR message is received
- A DUNA message is received
- A DAVA message is received
- A DRST message is received
- A SCON message is received
- A DUPU message is received
- A BEAT message is received
- A BEAT-ACK message is received
- A NOTIFY message is received

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## M3UAShouldQueuePeak

**Measurement Group:** Server M3UA Performance

**Measurement Type:** Max

**Description:** The peak M3UA Network Management Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 30 min

**Peg Condition:** The maximum M3UA Stack Event Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

### M3UAShouldQueueAvg

**Measurement Group:** Server M3UA Performance

**Measurement Type:** Average

**Description:** The average M3UA Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 30 min

**Peg Condition:** The average of all M3UA Stack Event Queue utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

### SCTPAggrQueuePeak

**Measurement Group:** Server M3UA Performance

**Measurement Type:** Max

**Description:** The peak SCTP Aggregate Association Writer Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 30 min

**Peg Condition:** The maximum SCTP Aggregate Association Writer Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. An IP network or STP/SG problem may exist preventing SCTP from transmitting messages into the network on multiple Associations at the same pace that messages are being received from the network.

2. One or more SCTP Association Writer threads may be experiencing a problem preventing it from processing events from its event queue. Examine the alarm log from the GUI main menu under **Alarms & Events>View Active**.
3. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from **Status & Manage>Server**.
4. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from **Status & Manage>KPIs**. Each MP in the server site should be receiving approximately the same ingress transaction per second.
5. There may be an insufficient number of MPs configured to handle the network traffic load. You can monitor the ingress traffic rate of each MP from **Status & Manage>KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## SCTPAggrQueueAvg

**Measurement Group:** Server M3UA Performance

**Measurement Type:** Average

**Description:** The average SCTP Aggregate Association Writer Queue utilization (0-100%) measured during the collection interval.

**Collection Interval:** 30 min

**Peg Condition:** The average of all SCTP Aggregate Association Writer Queue utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. An IP network or STP/SG problem may exist preventing SCTP from transmitting messages into the network on multiple Associations at the same pace that messages are being received from the network.
2. One or more SCTP Association Writer threads may be experiencing a problem preventing it from processing events from its event queue. Examine the alarm log from the GUI main menu under **Alarms & Events>View Active**.
3. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from **Status & Manage>Server**.
4. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from **Status & Manage>KPIs**. Each MP in the server site should be receiving approximately the same ingress transaction per second.
5. There may be an insufficient number of MPs configured to handle the network traffic load. You can monitor the ingress traffic rate of each MP from **Status & Manage>KPIs**. If all MPs are in a congestion state, then the offered load to the server site is exceeding its capacity.
6. If the problem persists, contact [My Oracle Support \(MOS\)](#).

## Server M3UA Usage measurements

**Table 76: Server M3UA Usage Measurement Report Fields**

Measurement Tag	Description	Collection Interval
TxASPSM	Number of ASPSM messages sent by the MP server.	30 min
RxASPSM	Number of ASPSM messages received by the server.	30 min
TxASPTM	Number of ASPTM messages sent by the MP server.	30 min
RxASPTM	Number of ASPTM messages received by the MP server.	30 min
TxDAUD	Number of DAUD messages sent by the MP server. DAUD message are sent periodically as an audit when the SG reports that a point code is unavailable or congested.	30 min
RxSSNM	Number of SSNM messages received by the MP server. SSNM messages are sent from the SG as 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

**Measurement Group:** Server M3UA Usage

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** This measurement gives the level of ASPSM M3UA signaling that occurs on the MP server during the reporting period.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time any of the following occur:

- An ASP-UP message is sent.
- An ASP-DOWN message is sent.
- A BEAT message is sent.
- A BEAT-ACK message is sent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

### RxASPSM

**Measurement Group:** Server M3UA Usage

**Measurement Type:** Simple

**Description:** This measurement gives the level of ASPSM M3UA signaling occurring on the MP server during the reporting period.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time any of the following occur:

- An ASP-UP-ACK message is received
- An ASP-DOWN-ACK message is received
- A BEAT message is received
- A BEAT-ACK message is received

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

### TxASPTM

**Measurement Group:** Server M3UA Usage

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** This measurement gives the level of ASPTM M3UA signaling that occurs on the MP server during the reporting period.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time any of the following occur:

- An ASP-ACTIVE message is sent.
- An ASP-INACTIVE message is sent.

**Measurement Scope:** NE, Server



**Recovery:**

No action required.

## RxASPTM

**Measurement Group:** Server M3UA Usage

**Measurement Type:** Simple

**Description:** This measurement gives the level of ASPTM M3UA signaling occurring on the MP server during the reporting period.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time any of the following occur:

- An ASP-ACTIVE-ACK message is received
- An ASP-INACTIVE-ACK message is received

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## TxDAUD

**Measurement Group:** Server M3UA Usage

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** This measurement indicates the level of auditing that occurs on the MP server during the reporting period. AUD message are sent periodically as an audit when the SG reports that a point code is unavailable or congested.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by one each time a DAUD message is sent.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxSSNM

**Measurement Group:** Server M3UA Usage

**Measurement Type:** Simple

**Description:** The number of SSNM messages received by the MP server. SSNM messages are sent from the SG as information about point code and user part status in the network. This measurement indicates the level of SSNM signaling occurring on the MP server during the reporting period.

**Collection Interval:** 30 min

**Peg Condition:** This measurement is incremented by the number of octets in the message (not including SCTP, IP, or Ethernet headers) each time any of the following occur:

- A DUNA message is received
- A DAVA message is received
- A DRST message is received
- A SCON message is received
- A DUPU message is received

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxM3uaNOTIFY

**Measurement Group:** Server M3UA Usage

**Measurement Type:** Simple

**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 77: 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

Measurement Tag	Description	Collection Interval
TxM3RLDestCong	Number of egress messages M3RL discarded because the RSP/Destination's congestion level was higher than the message's priority.	5 min
TxM3RLBufOverflow	Number of egress messages M3RL discarded because of an internal buffer overflow.	5 min
RxM3RLInvalidDPC	Number of ingress messages M3RL discarded because the DPC was not the True Point Code (TPC) or Capability Point Code (CPC) configured for the MP.	5 min
RxM3RLInvalidSI	Number of ingress messages M3RL discarded because the Service Indicator received was not "0" (SNM) or "3" (SCCP).	5 min
RxM3RLInvalidNI	Number of ingress messages M3RL discarded because the Network Indicator received was not the same value configured for the MP.	5 min
RxM3RLBufOverflow	Number of ingress messages M3RL discarded because of an internal buffer overflow.	5 min
M3RLStackQueueFull	Number of messages that were discarded because the M3RL Stack Event Queue was full.	5 min
M3RLNetMgtQueueFull	Number of M3RL network management messages (SI=0) that were discarded because the M3RL Network Management Event Queue was full.	5 min

### TxM3RLDestUnknown

**Measurement Group:** Server MTP3 Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress messages M3RL discarded because no routing information exists for the RSP/Destination.

**Collection Interval:** 5 min

**Measurement Scope:** 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

**Measurement Group:** Server MTP3 Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress messages M3RL discarded because the RSP/Destination was Unavailable.

**Collection Interval:** 5 min

**Measurement Scope:** NE, Server

**Recovery:**

The RSP/Destination can be unavailable when the request is received from the User Part or while M3RL is buffering messages for a rerouting or changeover/changeback procedure.

### TxM3RLDestCong

**Measurement Group:** Server MTP3 Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress messages M3RL discarded because the RSP/Destination's congestion level was higher than the message's priority.

**Collection Interval:** 5 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many egress messages M3RL discarded because the RSP/Destination's congestion level was higher than the message's priority. Network Management messages have the highest message priority. User Part message priorities are determined by the SCCP layer.

### TxM3RLBufOverflow

**Measurement Group:** Server MTP3 Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress messages M3RL discarded because of an internal buffer overflow.

**Collection Interval:** 5 min

**Measurement Scope:** NE, Server

**Recovery:**

1. This condition should not occur but may be caused by an unusually high setting of the T1, T3, or T6 timers. The default value is 60ms but the user has the ability to set them as high as 2000ms. You can view and modify the current M3RL timer values via the GUI under **SS7/Sigtran>Configuration>MTP3 Options**.
2. An internal overflow condition may occur if the IP network is unstable causing M3RL to invoke multiple Changeover/Changeback procedures as links fail and recover. Verify that IP network connectivity exists between the MP server and the adjacent servers.
3. Check the event history logs for additional SS7 events or alarms from this MP server.
4. Verify that the adjacent server is not under maintenance.
5. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## RxM3RLInvalidDPC

**Measurement Group:** Server MTP3 Exception

**Measurement Type:** Simple

**Description:** This value provides a measure of how many ingress messages are discarded because the DPC was not a True Point Code (TPC) or Capability Point Code (CPC) configured for the MP.

**Collection Interval:**

**Peg Condition:**

**Measurement Scope:**

**Recovery:**

1. From the GUI main menu under **SS7/Sigtran>Configuration>Link Sets** verify that the LSP Point Code field is set to **All** if signaling can arrive for either CPC or TPC on this link set.
2. If this measurement is large, it may indicate a routing inconsistency between STP/SG and the MP. You can view the point codes of the MP from **SS7/Sigtran>Configuration>Local Signaling Points**.

## RxM3RLInvalidSI

**Measurement Group:** Server MTP3 Exception

**Measurement Type:** Simple

**Description:** This value provides a measure of how many ingress messages M3RL discarded because the Service Indicator received was not 0 (SNM) or 3 (SCCP).

**Collection Interval:** 5 min

**Measurement Scope:** NE, Server

**Recovery:**

This type of failure should never occur and usually indicates that the routing in the STP/SG or originator of the message is incorrect.

## RxM3RLInvalidNI

**Measurement Group:** Server MTP3 Exception

**Measurement Type:** Simple

**Description:** This value provides a measure of how many ingress messages M3RL discarded because the Network Indicator received was the same value configured for the MP.

**Collection Interval:** 5 min

**Measurement Scope:** NE, Server

**Recovery:**

If this measurement is large, it may indicate a routing inconsistency between the STP/SG and the MP. The NI values for the MP can be viewed via the GUI main menu under

**SS7/Sigtran>Configuration>Local Signaling Points**. See the **SS7 Domain** column.

## RxM3RLBufOverflow

**Measurement Group:** Server MTP3 Exception

**Measurement Type:** Simple

**Description:** This value provides a measure of how many ingress messages M3RL discarded because of an internal buffer overflow.

**Collection Interval:** 5 min

**Measurement Scope:** NE, Server

**Recovery:**

This should never occur unless the MP is experiencing severe overload conditions and SCCP is unable to service its event queue.

## M3RLStackQueueFull

**Measurement Group:** Server MTP3 Exception

**Measurement Type:** Simple

**Description:** The number of messages that were discarded because the M3RL Stack Event Queue was full. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 5 min

**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.

## M3RLNetMgtQueueFull

**Measurement Group:** Server MTP3 Exception

**Measurement Type:** Simple

**Description:** The number of M3RL network management messages (SI=0) that were discarded because the M3RL Network Management Event Queue was full. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 5 min

**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.

## Server MTP3 Performance measurements

**Table 78: 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

Measurement Tag	Description	Collection Interval
M3RLStackQueuePeak	Peak M3RL Stack Event Queue utilization (0-100%) measured during the collection interval	5 min
M3RLStackQueueAvg	Average M3RL Stack Event Queue utilization (0-100%) measured during the collection interval.	5 min
M3RLNetMgtQueuePeak	Peak M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval	5 min
M3RLNetMgtQueueAvg	Average M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval	5 min

## TxM3RLDataMsgs

**Measurement Group:** Server MTP3 Performance

**Measurement Type:** Simple

**Description:** This value provides a measure of how many egress DATA messages are sent from M3RL to M3UA. This measurement includes SCMG messages (which are DATA to the M3RL layer), but does not include SNM messages.

**Collection Interval:** 5 min

**Peg Condition:** This counter is pegged each time a M3RL DATA message is sent to M3UA. This counter includes SCMG messages (which are DATA to the M3RL layer), but does not include SNM messages.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## RxM3RLDataMsgs

**Measurement Group:** Server MTP3 Performance

**Measurement Type:** Simple

**Description:** This value provides a measure of how many ingress DATA messages M3RL is processing from the network. This measurement includes SCMG messages (which are DATA to the M3RL layer), but does not include SSNM messages.

**Collection Interval:** 5 min



**Peg Condition:** This counter is pegged each time a M3RL DATA message is received at M3RL from M3UA. This counter includes SCMG messages (which are DATA to the M3RL layer), but does not include SSNM messages.

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

## M3RLStackQueuePeak

**Measurement Group:** Server MTP3 Performance

**Measurement Type:** Max

**Description:** The peak M3RL Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 5 min

**Peg Condition:** The maximum M3RL Stack Event Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

## M3RLStackQueueAvg

**Measurement Group:** Server MTP3 Performance

**Measurement Type:** Average

**Description:** The average M3RL Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 5 min

**Peg Condition:** The average of all M3RL Stack Event Queue utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

### M3RLNetMgtQueuePeak

**Measurement Group:** Server MTP3 Performance

**Measurement Type:** Max

**Description:** The peak M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 5 min

**Peg Condition:** The maximum M3RL Network Management Event Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

### M3RLNetMgtQueueAvg

**Measurement Group:** Server MTP3 Performance

**Measurement Type:** Average

**Description:** The average M3RL Network Management Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 5 min

**Peg Condition:** The average of all M3RL Network Management Event Queue utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

2. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## Server Resource Usage measurements

**Table 79: 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
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

Measurement Tag	Description	Collection Interval
ANSIPDUUtilPeak	The peak ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.	5 min
ANSIPDUUtilAvg	The average ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.	5 min

## SS7ProcessPeak

**Measurement Group:** Server Resource Usage

**Measurement Type:** Max

**Description:** The peak SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 Process is responsible for all SS7-related processing.

**Collection Interval:** 5 min

**Peg Condition:** The maximum SS7 Process CPU utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

## SS7ProcessAvg

**Measurement Group:** Server Resource Usage

**Measurement Type:** Average

**Description:** The average SS7 Process CPU utilization (0-100%) measured during the collection interval. The SS7 process is responsible for all SS7-related processing.

**Collection Interval:** 5 min

**Peg Condition:** The average of all SS7 Process CPU utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

### SS7RxMsgRatePeak

**Measurement Group:** Server Resource Usage

**Measurement Type:** Max

**Description:** The peak Ingress Message Rate (in messages per second) measured during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.

**Collection Interval:** 5 min

**Peg Condition:** The maximum Ingress Message Rate (messages per second) sample taken during the collection interval

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing mis-configuration problem may exist
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### SS7RxMsgRateAvg

**Measurement Group:** Server Resource Usage

**Measurement Type:** Max

**Description:** The average Ingress Message Rate (messages per second) during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.

**Collection Interval:** 5 min

**Peg Condition:** The average of all Ingress Message Rate samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.
2. If both the peak and average measurement for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP over several collection intervals, then the number of MPs in the Network Element may need to be increased.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific hardware, software, or configuration problem may exist or an STP/SG routing mis-configuration problem may exist.
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### ItuiPDUUtilPeak

**Measurement Type:** Max

**Measurement Group:** Server Resource Usage

**Description:** The peak ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum SS7 ITUI/ITUN PDU Buffer Pool utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. ITUI PDU is allocated to each ITUI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.
2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

### ITUPDUUtilAvg

**Measurement Type:** Average

**Measurement Group:** Server Resource Usage

**Description:** The average ITUI/ITUN PDU Buffer Pool utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all SS7 ITUI/ITUN PDU Buffer Pool utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. ITUI PDU is allocated to each ITUI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.
2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## ANSIPDUUtilPeak

**Measurement Group:** Server Resource Usage

**Measurement Type:** Max

The peak ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The maximum ANSI PDU buffer pool utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. ANSI PDU is allocated to each ANSI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.
2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## AnsiPDUUtilAvg

**Measurement Group:** Server Resource Usage

**Measurement Type:** Average

**Description:** The average ANSI PDU Buffer Pool utilization (0-100%) measured during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** The average of all ANSI PDU buffer pool utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

1. ANSI PDU is allocated to each ANSI message that arrives at an MP and is de-allocated when message processing completes. This measurement is useful for evaluating whether persistent network problems exist. In general PDU buffers are engineered for required SS7 domains and the processing capacity of the MP. If network problems exist, delaying the off-loading of egress messages from the MP, then PDUs/messages will sit in internal SS7 queues.
2. If both the peak and average measurements for multiple MPs within a Network Element are consistently near the recommended maximum engineered capacity of an MP when the Ingress Message Rate and/or SS7 Process CPU Utilization measurements are below the recommended maximum engineered capacity of an MP, then a network (IP or SS7) problem may exist. Looking at these measurements on a time of day basis may provide additional insight into potential network problems.
3. If the peak and average for an individual MP is significantly different than other MPs in the same Network Element then an MP-specific software problem may exist (e.g., a buffer pool leak).
4. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## Server SCCP Exception measurements

**Table 80: 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	30 min



Measurement Tag	Description	Collection Interval
	missing/invalid for an ingress SCCP message.	
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 GTI=2 for ANSI, only GTI=2 and GTI=4 for ITU).	30 min
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	30 min

Measurement Tag	Description	Collection Interval
	RSP/Destination's congestion level was higher than the message's priority.	
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 <code>ri=rt-on-gtt</code> messages from the SS7 stack.	30 min

**EvError**

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of error trace conditions. This indicates that an expected but abnormal path was taken in the software, which warrants further investigation.

By default, error tracing is disabled. Non-zero values in this measurement indicate that something is occurring that would have generated an error trace, were error tracing enabled. These error trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

Contact [My Oracle Support \(MOS\)](#) for assistance if any unexpected non-zero values in this measurement occur.

**EvVital**

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of vital trace conditions encountered. A vital trace indicates that an unexpected path was taken in the software, which warrants further investigation. These vital trace conditions should not affect service; situations that are service affecting will be covered by Alarms or Events.

During application start-up and shutdown, vital traces are used to show details that can aid in debugging of initialization and shutdown problems. These traces are always enabled and cannot be turned off.

It is a VITAL error condition for any other instance.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

Contact [My Oracle Support \(MOS\)](#) for assistance if any unexpected non-zero values in this measurement occur.

**RxMaxTpsExceeded**

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of ingress SCCP messages that were discarded because of the Local MP Maximum TPS limit.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

1. The MP is approaching or exceeding its engineered traffic handling capacity. If one or more MPs in a server site have failed, the traffic will be distributed among the remaining MPs in the server site. You can monitor MP server status from the GUI main menu under **Status & Manage>Server Status**.
2. The misconfiguration of STP routing may result in too much traffic being distributed to the MP. You can monitor the ingress traffic rate of each MP from the GUI main menu under **Status & Manage>KPI Display**. 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>KPI Display**. 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

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of ingress SCCP messages that were discarded because of local MP congestion.

**Collection Interval:** 30 min

**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>KPI Display**. 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>KPI Display**. 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

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of ingress messages SCCP discarded because the MTP point code was present but was not a TPC or CPC for the signaling standard of the message.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This count shows how many ingress messages SCCP discarded because the point code received in the MTP was not encoded correctly (same as TPC or CPC) for the signaling standard of the message. If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured. Contact [My Oracle Support \(MOS\)](#) for assistance.

## RxSCCPInvalidSSN

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of ingress messages SCCP discarded because the CdPA/CgPA SSN was present but had an invalid value (SSN < 1 or SSN > 254).

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured.

## RxSCCPInvalidMsg

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of ingress messages SCCP discarded because the message type is not currently supported.

**Note:** Only the following connectionless message types are supported: UDT, XUDT, UDTS, and XUDTS. Valid SCMG message types are SSA, SSP, and SST.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

If a high number of these errors occurs, then the originator of the message may be misconfigured.

## RxSCCPInvalidHop

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** Number of ingress messages SCCP discarded because of a Hop Counter violation associated with CdPA RI=route on GT.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

If this error occurs, then either the originator of the message is setting the initial value too low or the STPs are rerouting the message too many times due to a possible STP routing misconfiguration. Contact [My Oracle Support \(MOS\)](#) for assistance.

## RxSCCPInvalidClass

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of ingress messages SCCP discarded because of an invalid protocol class.

**Note:** Only classes 0 and 1 are supported.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

If a high number of these errors occurs, then the originator of the message may be misconfigured or the network is misconfigured causing mis-routing of messages.

## RxSCCPInvalidGTI

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of ingress messages SCCP discarded because an invalid Global Title Indicator (GTI) value was received. This only applies to messages received with RI=route on GT.

**Note:** GTI=0 is invalid.

**Collection Interval:** 30 min

**Peg Condition:**

**Measurement Scope:** NE, Server

**Recovery:**

If a high number of these errors occurs, then the originator of the message may be misconfigured.

## RxSCCPReassFAIL

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of times the reassembly procedure failed.

**Collection Interval:** 30 min

**Peg Condition:** For each reassembly failure for ingress segmented XUDT message received from network

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. This value provides a measure of number of reassembly procedure failures encountered during the reporting interval.
2. Check for any related additional Events or Alarms from the server.

## RxSCCPReassInternalFail

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of reassembly procedure failures due to internal error or resource limitation.

**Collection Interval:** 30 min

**Peg Condition:** N/A

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. This value provides a measure of number of reassembly procedure failures encountered due to errors encountered on server, during the reporting interval.
2. Non-zero value for this measurement tag represents resource usage issues on the server. Check for any related additional Events or Alarms from the server.

## RxSCCPReassOOSFail

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of reassembly procedure failures due to out-of-sequence segments received from network.

**Collection Interval:** 30 min

**Peg Condition:** For each ongoing reassembly procedure failure as a result of out of order arrival of remaining segments.

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. This value provides a measure of number of reassembly procedure failures encountered due to “out of order arrival of remaining segments in a reassembly procedure” reason, during the reporting interval.
2. Non-zero value for this measurement tag represents sequencing issues in packet arrival from network or any other routing error or delays in network or on server. Check for any related additional Events or Alarms from the server.

**RxSCCPReassTExp****Measurement Group:** Server SCCP Exception**Measurement Type:** Simple**Description:** The number of reassembly procedure failures due to reassembly timer expiry.**Collection Interval:** 30 min**Peg Condition:** For each reassembly procedure failures due to reassembly timer expiry**Measurement Scope:** Network, NE, Server**Recovery:**

1. This value provides a measure of number of reassembly procedure failures encountered due to “Reassembly Timer Expiry” reason, during the reporting interval.
2. Non-zero value for this measurement tag represents latency issues in packet arrival from network or any other delay on server resulting in reassembly timer expiry. Check for any related additional Events or Alarms from the server.

**RxSCCPSegmentOOS****Measurement Group:** Server SCCP Exception**Measurement Type:** Simple**Description:** The number of XUDT segments received out-of-sequence from network.**Collection Interval:** 30 min**Peg Condition:** On received XUDT segments with F bit set as 0 and received segments could not be attached to any open reassembly procedure (i.e. reassembly procedure was not started for this and no key found to associate the segments to a in-process reassembly)**Measurement Scope:** Network, NE, Server**Recovery:**

1. This value provides a measure of number of segmented XUDT messages received with sequence delivery option but arrived out of sequence at SCCP Layer, during the reporting interval.
2. For these out of sequence received XUDT segments, there is no ongoing reassembly procedure to attach these segments.
3. Non-zero value for this measurement tag represents in-sequence routing or reassembly key uniqueness issue. Check for any related additional Events or Alarms from the server.



## RxSCCPSgmntsPartReassFAIL

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of partially reassembled segments discarded due to any errors.

**Collection Interval:** 30 min

**Peg Condition:** For each segmented XUDT message that was buffered and discarded due to reassembly procedure failure

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides cumulative measure of ingress segmented XUDT messages which were buffered but discarded due to reassembly procedure failure.

## RxSCCPUnavailSSN

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** Number of ingress messages (RI=SSN) SCCP discarded because the CdPA SSN (Local SSN for MPs TPC) was manually disabled.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many ingress (RI=SSN) messages SCCP discarded because the affected Local Subsystem status was manually disabled. The Status of Local Subsystems (Local SCCP Users, LSUs) for a Local Signaling Point can be viewed via the following GUI menu: Main Menu: SS7/SIGTRAN -> Maintenance -> 'Local SCCP Users'.

## RxSCCPUnknownSSN

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** Number of ingress messages (RI=SSN) SCCP discarded because the CdPA SSN (Local SSN for MPs TPC) is not configured for the MTP DPC's signaling domain

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many ingress (RI=SSN) messages SCCP discarded because the affected Local Subsystem is not configured for the MTP DPC's signaling domain. The Local

Subsystems (Local SCCP User, LSUs) for a Local Signaling Point can be configured via the following GUI menu: Main Menu: SS7/SIGTRAN -> Configuration -> 'Local SCCP Users' Insert.

### RxSCCPXudtInvSgmnt

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** The number of received XUDT segments resulted in protocol violation decode error.

**Collection Interval:** 30 min

**Peg Condition:** For protocol decoding errors while parsing ingress segmented XUDT

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of malformed segmented XUDT messages received from the network.

### SCCPGTTFailure

**Measurement Group:** Server SCCP Exception

**Measurement Type:** Simple

**Description:** Count of SCCP GTT Failures due to default GTT handling in SS7Stack.

**Collection Interval:** 30 min

**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

**Description:** The number of ingress SCCP messages that were discarded because the SCCP Stack Event Queue was full.

**Collection Interval:** 30 min

**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

**Description:** Number of ingress/egress malformed or unsupported messages.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many malformed or unsupported SCCP management messages were discarded. Supported SCMG messages are SST, SSP and SSA. Any other SCCP Management message is pegged under this tag.

### TxSCCPCongestion

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress messages SCCP discarded because the RSP/Destination's congestion level was higher than the message's priority.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

You can view the remote RSPs/Destinations to SCCP and their congestion status from the GUI main menu under **SS7/Sigtran>Maintenance>Remote MTP3 Users**.

### TxSCCPInvUserMsgs

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** 9068

**Measurement Type:** Simple

**Description:** SCCP User submitted an Invalid/malformed/unsupported message for egress routing (SCCP User->SCCP N-UnitDataReq)

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many egress SCCP User messages encountered validation failure on SCCP. If a high number of these errors occur, then it indicates an encoding error at the originator or the originator of the message may be mis-configured.

### TxSCCPInvalidDPC

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress messages SCCP discarded because the CdPA signaling point code is present but is not valid for the signaling standard of the message.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured.

### TxSCCPInvalidSSN

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress messages SCCP discarded because the CdPA/CgPA SSN was present but had an invalid value (SSN < 1 or SSN > 254).

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

If a high number of these errors occurs, it indicates that an encoding error exists at the originator or that the originator of the message may be misconfigured.

### TxSCCPSegmentFAIL

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of times segmentation procedure failed.

**Collection Interval:** 30 min

**Peg Condition:** On failure in completion of segmentation procedure for each large egress user data message.

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. This value provides a measure of number of segmentation procedure completion failures for large egress user data messages. Segmentation Error Procedure is executed on each such failure.
2. Check for any related additional Events or Alarms from the server.

### TxSCCPUnavailDPC

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of egress messages SCCP discarded because the affected DPC status was marked prohibited/unavailable.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many egress messages SCCP discarded because the RSP/Destination status was paused / prohibited at SCCP. Point code status is received from M3RL via the MTP-PAUSE and MTP-RESUME indications. The remote RSPs/Destinations known to SCCP and their status can be viewed via the following GUI menu: Main Menu: SS7/SIGTRAN -> Maintenance -> 'Remote Signaling Points'.

### TxSCCPUnavailSSN

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of egress messages SCCP discarded because the CdPA or Affected SSN was either marked prohibited/unavailable.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many egress messages SCCP discarded because the Remote Subsystem status was Prohibited. Subsystem status is received from M3RL via the SS-STATUS indications or via SCMG SSA and SSP messages. The remote subsystems (RMUs) known to SCCP and their status can be viewed via the following GUI menu: **Main Menu: SS7/SIGTRAN -> Maintenance -> 'Remote MTP3 Users'**.

## TxSCCPUnknownDPC

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of egress messages SCCP discarded because the affected DPC in message is not configured or is unknown.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many egress messages SCCP discarded because the RSP or affected DPC in the message is not configured and is unknown at SCCP. The remote RSPs/affected Destinations known to SCCP and their status can be viewed via the following GUI menu: **Main Menu: SS7/SIGTRAN -> Maintenance -> 'Remote Signaling Points'**.

## TxSCCPUnknownSSN

**Measurement Group:** Server SCCP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Number of egress messages SCCP discarded because the CdPA or affected SSN was unknown.

**Collection Interval:** 30 min

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many egress messages SCCP discarded because the Subsystem was unknown to SCCP. The remote subsystems (RMUs) can be configured from GUI menu: **Main Menu: SS7/SIGTRAN -> Configuration -> Remote MTP3 Users** and their status can be viewed via the following GUI menu: **Main Menu: SS7/SIGTRAN -> Maintenance -> 'Remote MTP3 Users'**.

## Server SCCP Performance measurements

**Table 81: Server SCCP Performance Measurement Report Fields**

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

RxSCCP RtSsnXudtSgmnt	Number of Rt on Ssn segmented XUDT messages received from network	30 min
RxSCCPSegmentSrvcMsg	Number of Segmented XUDTS messages received from network	30 min
RxSCCP SgmntsReassSUCC	Number of XUDT segments reassembled successfully	30 min

### TxSCCPMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Egress messages sent by SCCP to M3RL (SCCP->M3RL MTP-TRANSFER request). This value provides a measure of how many egress SCCP messages are being processed by the MP server.

**Collection Interval:** 30 min

**Peg Condition:** For each message sent to M3RL

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

### RxSCCPMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Ingress messages received by SCCP from M3RL (M3RL> SCCP MTP TRANSFER indication).

**Collection Interval:** 30 min

**Peg Condition:** For each message received from M3RL

**Measurement Scope:** NE, Server

**Recovery:**

No action required.

### TxSCCPUserMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single



**Measurement Type:** Simple

**Description:** Egress messages sent by SCCP User to SCCP to M3RL (SCCPUser-> SCCP N-UnitDataReq->M3RL MTP-TRANSFER request)

**Collection Interval:** 30 min

**Peg Condition:** For each message sent to M3RL

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of how many egress SCCP User messages are being processed by the MP server.

### TxSCMGMsgs

**Measurement ID:** 9069

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of valid egress SCMG messages.

**Collection Interval:** 30 min

**Peg Condition:** For each valid message generated by SCMG

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of egress SCCP Management messages This could be due to local or remote SCCP/SCCP Users status. The Status of Local or Remote Subsystems can be viewed via the following GUI menu: **Main Menu: SS7/SIGTRAN -> Maintenance -> Local SCCP Users or Remote MTP3 Users.**

### TxMsgRatePeak

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** The peak Ingress Message Rate (in messages per second) measured during the collection interval. The Ingress Message Rate is the number of non-SNM (SI > 0) messages that M3UA attempts to queue in the M3RL Stack Event Queue.

**Collection Interval:** 30 min

**Peg Condition:** The maximum Ingress Message Rate (messages per second) sample taken during the collection interval.

**Measurement Scope:** NE, Server

### Recovery:

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

## TxMsgRateAvg

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average Egress Message Rate (messages per second) during the collection interval.

**Collection Interval:** 30 min

**Peg Condition:** The average of all Ingress Message Rate samples taken during the collection interval.

**Measurement Scope:** NE, Server

### Recovery:

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

## RxSCCPUserMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Ingress SCCP UDT/XUDT messages sent by SCCP to Configured and available SCCP Users using a local SSN (SCCP->SCCP User N-UnitDataInd)

**Collection Interval:** 30 min

**Peg Condition:** For each UDT/XUDT message received for SCCP user and was delivered to SCCP user

**Measurement Scope:** NE, Server

### Recovery:

This value provides a measure of how many ingress SCCP User (RI=SSN) messages are being forwarded to SCCP User application hosted by the MP server.

### RxSCCPUserNoticeMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** Ingress SCCP UDTs/XUDTs (RI=SSN) messages converted into N-Notice-Ind by SCCP and sent to the configured and available SCCP Users using a local SSN (SCCP->SCCP User N-NoticeInd)

**Collection Interval:** 30 min

**Peg Condition:** for each UDTs/XUDTs message received for SCCP user and a notification was delivered to SCCP user

**Measurement Scope:** NE, Server

**Recovery:**

1. This value provides a measure of how many ingress SCCP UDTs/XUDTs (RI=SSN) messages were received and converted into N-Notice-Ind and forwarded to SCCP User application hosted by the MP server.
2. If a high number of these errors occur, then it indicates the remote SCCP/SCCP Application could not process the message as expected and resulted in executing sccp error handling procedure. It's normally associated with an event/alarm condition. If a high number of these errors occur, then check the event history under **Main Menu:: Alarms & Events-> View History**.

### RxSCMGMMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of valid ingress SCMG messages.

**Collection Interval:** 30 min

**Peg Condition:** For each valid message received for SCMG

**Measurement Scope:** NE, Server

**Recovery:**

This value provides a measure of ingress SCCP Management messages. This could be due to local or remote SCCP/SCCP Users status. The Status of Local or Remote Subsystems can be viewed via the following GUI menu: **Main Menu: SS7/SIGTRAN -> Maintenance -> 'Local SCCP Users' or Remote MTP3 Users**.

## SCCPStackQueuePeak

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Max

**Description:** The peak SCCP Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 30 min

**Peg Condition:** The maximum SCCP Stack Event Queue utilization sample taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

## SCCPStackQueueAvg

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average SCCP Stack Event Queue utilization (0-100%) measured during the collection interval. This measurement is primarily intended to assist in evaluating the need for additional MP processing capacity at a Network Element.

**Collection Interval:** 30 min

**Peg Condition:** The average of all SCCP Stack Event Queue utilization samples taken during the collection interval.

**Measurement Scope:** NE, Server

**Recovery:**

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

## TxSCCPLargeMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress large user data messages for segmentation.

**Collection Interval:** 30 min

**Peg Condition:** For each large user data message submitted by SCCP User for egress routing.

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of how many large user data messages are submitted to SCCP layer for egress routing during the reporting interval. This measurement peg value divided by the interval yields the average rate of large egress user data messages for the server.

## TxSCCPSegmentsPerMsg

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Arrayed-Bucketed (Index on number of segments created for each larger egress user data message)

**Measurement Type:** Simple

**Description:** The number of segments created for each large egress user data message.

**Collection Interval:** 30 min

**Peg Condition:** When the segmentation procedure is completed on each large egress user data packet, using "number of segments" as index.

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. Values in this arrayed measurement provides a measure of number of XUDT messages created each time a large user data messages is segmented by SCCP layer.
2. This arrayed measurement can be used for heuristics on segments created during the reporting interval and the SS7 traffic rate impact due to large egress user data size traffic.

## TxSCCPSegmentSUCC

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of times segmentation procedure completed successfully.

**Collection Interval:** 30 min

**Peg Condition:** On successful completion of segmentation procedure for each large egress user data message (i.e. user data length is greater than SCCP Option Configured value).

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of number of successful segmentation procedure completion for large egress user data messages are successfully segmented and corresponding XUDT messages are forwarded by SCCP layer for egress routing during the reporting interval.

## RxSCCPSgmntXudtMsgs

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of ingress segmented XUDT messages received from network.

**Collection Interval:** 30 min

**Peg Condition:** For each segmented XUDT message received from network.

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. This value provides a measure of how many segmented XUDT messages are received by SCCP layer during the reporting interval. SCCP will execute reassembly procedure for each such received message.
2. This measurement peg value divided by the interval yields the average rate of new segmented XUDT messages received from the network.

## RxSCCPReassSUCC

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of times reassembly procedure successfully completed.

**Collection Interval:** 30 min

**Peg Condition:** On successful completion of reassembly procedure using a number of ingress segmented XUDT messages.

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of number of successful reassembly procedure (using a number of ingress segmented XUDT messages) completion during the reporting interval. The reassembled user data is forwarded as single packet to SCCP User.

## RxSCCPSgmntReassPerMsg

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Arrayed-Bucketed (Index on number of segments reassembled)

**Measurement Type:** Simple

**Description:** The number of segments reassembled to create one large ingress user data message.

**Collection Interval:** 30 min

**Peg Condition:** This is an arrayed measurement with “number of XUDT segments assembled” as index. Peg this measurement using “number of XUDT segments assembled” as index, when reassembly procedure is completed using more than one ingress segmented XUDT message.

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. Values in this arrayed measurement provides a measure of number of segmented XUDT messages were reassembled for each reassembly procedure before forwarding a large user data messages to SCCP User.
2. This arrayed measurement can be used for heuristics on number of segments network used for segmenting large message during the reporting interval and the SS7 traffic rate impact due to segmented XUDT messages on overall SCCP processing rate.

## RxSCCPRtGtFrwdAppl

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Rt On Gt Messages forwarded to Local Application.

**Collection Interval:** 30 min

**Peg Condition:** N/A

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of number of messages received with CDPA RI=GT and are forwarded to Local Application due to configured SCCP Option.

## RxSCCPRtGtXudtSgmnt

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Rt on Gt segmented XUDT messages received from network

**Collection Interval:** 30 min

**Peg Condition:** N/A

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of number of Rt on Gt segmented XUDT messages received from the network.

## RxSCCPRtSsnXudtSgmnt

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Rt on Ssn segmented XUDT messages received from network.

**Collection Interval:** 30 min

**Peg Condition:** N/A

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of number of Route on SSN segmented XUDT messages received from the network.

## RxSCCPSegmentSrvcMsg

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of Segmented XUDTS messages received from network.

**Collection Interval:** 30 min

**Peg Condition:** For each segmented XUDTS messages received from network

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of number of segmented XUDTS messages received from the network.

## RxSCCPSgmntsReassSUCC

**Measurement Group:** Server SCCP Performance

**Measurement Dimension:** Single



**Measurement Type:** Simple

**Description:** The number of XUDT segments reassembled successfully.

**Collection Interval:** 30 min

**Peg Condition:** For each well-formed ingress segmented XUDT message resulting in a successful reassembly procedure

**Measurement Scope:** Network, NE, Server

**Recovery:**

This value provides a measure of well-formed ingress segmented XUDT messages that are reassembled successfully.

## Server TCAP Exception measurements

**Table 82: 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
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

Measurement Tag	Description	Collection Interval
TCAPStackQueueFull	Stack event discarded due to TCAP task queue full.	30 min
TCAPDialogueTblFull	Dialogue discarded due to TcapDialogue table full.	30 min
TCAPAbrtTcuErr	Dialogues aborted by TCAP due to TC User error (not counting timeouts – P-Abort Ind).	30 min
TCAPAbrtPeerErr	Dialogues aborted by TCAP due to remote TCAP peer error (P-Abort Ind).	30 min
TCAPAbrtTcu	Dialogues aborted by TC User (U-Abort Req).	30 min
TCAPAbrtPeer	Dialogues aborted by peer (U-Abort Ind).	30 min
TCAPDialogueTimeout	Dialogues that timed out (dialogue cleanup timer expiry).	30 min
TCAPComponentQueueFull	Operations discarded due to full QueuedComponent array.	30 min
Ss7DeserializationFail	Number of MAP response message of which deserialization failed.	30 min

## TCAPDialogueTimeout

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of dialogues aborted by the local TCAP due to a dialogue timeout during the reporting interval.

**Note:** A dialogue timer is only started if the local TCAP application sends a `Begin` message that contains no components. The purpose of the dialogue timer is to prevent stale dialogues if the message never reaches the remote TCAP peer or if the remote TCAP peer never responds.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for Event 19267 - Dialogue removed by dialogue cleanup timer in the **Alarm History** during the time period covered by the measurement reporting interval.

2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPAbtPeer

**Measurement Group:** Server TCAP Exception

**Measurement Type:** Simple

**Description:** The number of dialogues aborted by the remote TCAP application using U-Abort during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for **Event 19269** in the GUI under **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPAbtTcu

**Measurement Group:** Server TCAP Exception

**Measurement Type:** Simple

**Description:** The number of dialogues aborted by the local TCAP during the reporting interval due to a decision by the local TCAP application.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. Look for related events in the GUI **Alarm History** log during the time period of the measurement reporting interval.
2. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPAbtPeerErr

**Measurement Group:** Server TCAP Exception

**Measurement Type:** Simple

**Description:** The number of dialogues aborted by the remote TCAP application using P-Abort during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for **Event 19264** or **Event 19266** in the GUI under **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPAbtTcuErr

**Measurement Group:** Server TCAP Exception

**Measurement Type:** Simple

**Description:** The number of dialogues aborted by the local TCAP during the reporting interval due to an error caused by the local TCAP application.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for **Event 19263** or **Event 19265** in the GUI under **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPDialogueTblFull

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of dialogues (both ingress and egress) discarded during the reporting interval due to the MP server's internal TCAP dialogue table being full.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

If the TCAP dialogue internal table reaches capacity, Alarm 19272 - TCAP active dialogue utilization will be raised with critical severity. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

## TCAPStackQueueFull

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of ingress events discarded during the reporting interval due to the MP server's TCAP internal event queue being full. Events could be incoming TCAP messages or N-Notice indications from SCCP.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

If the TCAP internal event queue reaches capacity, Alarm 19274 - TCAP stack event queue utilization will be raised with critical severity. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

## TCAPOpCancelTcu

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress operations that were cancelled by the local TCAP application during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. This measurement does not necessarily indicate an error condition. Look for events that may be related during the period of the measurement reporting interval for more details.
2. Please contact [My Oracle Support \(MOS\)](#) as needed for further assistance.

## TCAPOpTimeout

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress operations that timed out waiting for a response from the remote TCAP peer during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for Event 19268 - Operation removed by invocation time expiry in the GUI **Alarm History** during the time period covered by the measurement reporting interval.
2. This error may be caused by failure to route the message by one of the underlying layers (e.g., SCCP). Refer to the *DSR Alarms and KPIs Reference* for details about Event 19268 for information about how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPRetErrPeer**

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress components that resulted in a Return Error response by the remote TCAP peer during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for Event 19275 - Return error from remote TCAP peer (refer to the *DSR Alarms and KPIs Reference* for details about this event) in the GUI **Alarm History** during the time period covered by the measurement reporting interval.
2. This error is likely caused by a malformed message or unexpected message that we sent to the remote TCAP peer. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

**TCAPRetErrTcu**

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of ingress components that resulted in a Return Error response by the local TCAP application during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. Look for events in the GUI **Alarm History** during the time of the measurement reporting interval for more details related to why the component was discarded.

2. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPRejPeer

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress components rejected by the remote TCAP peer during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for Event 19271 - Operation rejected by remote TCAP peer (refer to the *DSR Alarms and KPIs Reference* for details about this event) in the GUI **Alarm History** during the time period covered by the measurement reporting interval. This error is likely caused by a malformed message or unexpected message that we sent to the remote TCAP peer.
2. If you can locate the corresponding event, see the appropriate documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPRejTcu

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of ingress components rejected by the local TCAP application during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. Look for events in the GUI **Alarm History** during the time of the measurement reporting interval for more details related to why the component was discarded.
2. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPRejPeerErr

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of ingress components discarded due to a component error caused by the remote TCAP peer during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for Events 19262 - Operation discarded due to malformed component received from remote TCAP peer or Event 19266 - Unexpected event received from remote TCAP peer (refer to the *DSR Alarms and KPIs Reference* for details about these events) in the GUI **Alarm History** during the time period covered by the measurement reporting interval. This error is likely caused by a malformed message or unexpected message from the remote TCAP peer.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPRejTcuErr

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress components discarded due to a component error caused by the local TCAP application during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

1. If this measurement has a non-zero value, look for Event 19265 - Unexpected event received from local TC User (refer to the *DSR Alarms and KPIs Reference* for details about this event) in the GUI **Alarm History** during the time period covered by the measurement reporting interval.
2. If you can locate the corresponding event, see the appropriate event documentation for how to proceed.
3. Please contact [My Oracle Support \(MOS\)](#) for further assistance in determining the exact cause of the failure.

## TCAPComponentTblFull

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple



**Description:** The number of egress operations discarded due to the MP server's TCAP component internal table being full during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

If the TCAP component internal table reaches capacity, Alarm 19273 - TCAP active operation utilization will be raised with critical severity. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

## Ss7DeserializationFail

**Measurement Group:** Server TCAP Exception

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of MAP response message of which deserialization failed.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

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

## Server TCAP Performance measurements

**Table 83: 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

Measurement Tag	Description	Collection Interval
TCAPComponentTblAvg	TcapComponent table average size.	30 min
TCAPComponentTblPeak	TcapComponent table maximum size.	30 min

## RxTCAPDialogues

**Measurement Group:** Server TCAP Performance

**Measurement Type:** Simple

**Description:** The number of ingress dialogues created on the MP server during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

This measurement shows the number of ingress dialogues (i.e., dialogues resulting from receipt of an ITU TCAP Begin message) created on the MP server during the reporting interval.

**RxTCAPDialogues** divided by the reporting interval yields the average rate of ingress dialogues for the MP server.

## TxTCAPDialogues

**Measurement Group:** Server TCAP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress dialogues created on the MP server during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

This measurement shows the number of egress dialogues (i.e., dialogues resulting from sending an ITU TCAP Begin message) created on the MP server during the reporting interval.

**TxTCAPDialogues** divided by the reporting interval yields the average rate of egress dialogues for the MP server.

## TxTCAPOperations

**Measurement Group:** Server TCAP Performance

**Measurement Dimension:** Single

**Measurement Type:** Simple

**Description:** The number of egress operations created on the MP server during the reporting interval.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

This measurement shows the number of egress operations (i.e., TCAP Invokes) created on the MP server during the reporting interval. **TxTCAPOperations** divided by the reporting interval yields the average rate of egress operations for the MP server.

## TCAPStackQueueAvg

**Measurement Group:** Server TCAP Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average percent utilization during the reporting interval of the MP server's TCAP internal queue used to receive messages from the SCCP layer. The number is expressed as a percentage of the maximum size.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

If the TCAP internal queue nears capacity, Alarm 19274 - TCAP stack event queue utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

## TCAPStackQueuePeak

**Measurement Group:** Server TCAP Performance

**Measurement Dimension:** Single

**Measurement Type:** Maximum

**Description:** The peak percent utilization during the reporting interval of the MP server's TCAP internal queue used to receive messages from the SCCP layer. The number is expressed as a percentage of the maximum size.

**Collection Interval:** 30 min

**Measurement Scope:** Network, NE, Server

**Recovery:**

If the TCAP internal queue nears capacity, Alarm 19274 - TCAP stack event queue utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

## TCAPDialogueTblAvg

**Measurement Group:** Server TCAP Performance

**Measurement Dimension:** Single

**Measurement Type:** Average

**Description:** The average percent utilization during the reporting interval of the MP server's TCAP dialogue internal table used to maintain dialogue state. The number is expressed as a percentage of the maximum size.

**Collection Interval:** 30 min

**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 Dimension:** Single

**Measurement Type:** Maximum

**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

**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 Dimension:** Single

**Measurement Type:** Average

**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

**Measurement Scope:** Network, NE, Server

**Recovery:**

If the TCAP component internal table nears capacity, Alarm 19273 - TCAP active operation utilization will be raised with a severity corresponding to how near the queue utilization is to 100%. Refer to the *DSR Alarms and KPIs Reference* for details about this alarm.

## TCAPComponentTblPeak

**Measurement Group:** Server TCAP Performance

**Measurement Dimension:** Single

**Measurement Type:** Maximum

**Description:** The peak percent utilization during the reporting interval of the MP server's TCAP component internal table used to maintain operation state. The number is expressed as a percentage of the maximum size.

**Collection Interval:** 30 min

**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.

## Session Binding Repository (SBR) Exception measurements

The "SBR Exception" measurement group is a set of measurements that provide information about exceptions and unexpected messages and events specific to the SBR application. Measurements such as the following are included in this group.

**Table 84: SBR Exception Measurement Report Fields**

Measurement Tag	Description	Collection Interval
Sbr.TxError	Number of error responses sent during the collection interval	5 min
Sbr.TxShedCreates	Number of load shed error responses per task indicating load shed create sent during the collection interval	5 min
Sbr.TxShedWrites	Number of load shed error responses per task indicating load shed write sent during the collection interval	5 min
Sbr.TxShedReads	Number of load shed error responses per task indicating load shed read sent during the collection interval	5 min

Measurement Tag	Description	Collection Interval
Sbr.TxShedAll	Number of load shed error responses per task indicating load shed all sent during the collection interval	5 min
Sbr.StackQueueFull	Number of StackEvents discarded due to SBR task queue full condition	5 min
Sbr.TxShedCreatesTot	Number of load shed error responses for create operations during the collection interval.	5 min
Sbr.TxShedWritesTot	Number of load shed error responses for write operations during the collection interval.	5 min
Sbr.TxShedReadsTot	Number of load shed error responses for read operations during the collection interval.	5 min
Sbr.TxShedAllTot	Number of load shed error responses for all operations during the collection interval.	5 min

## Sbr.TxError

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by return code):

- 0 = Unknown message type
- 1 = SBDB is full
- 2 = SBDB returned an error
- 3 = Session record not found
- 4 = Required parameter was missing
- 5 = Request shed due to load

**Description:** The number of error responses sent during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application sends an error response.

**Measurement Scope:** Server Group

**Recovery:**

1. Any counts for this measurement should be investigated.
2. For counts of unknown message type (return code 0), SBDB errors (return code 2) or missing parameters (return code 4), contact [My Oracle Support \(MOS\)](#) for assistance.

3. For counts of SBDB is full messages (return code 1), additional capacity may be required. Contact [My Oracle Support \(MOS\)](#) for assistance.
4. Counts of missing records (return code 3) occur if a session was removed during audit and then another request was received. To prevent this, increase the **Stale SBDB session binding age** setting found on the **CPA > Configuration > SBR** pane.
5. Any counts of requests shed due to load (return code 5) indicate that the SBR may be congested. Inspect the alarms for the SBR for more information regarding the severity of the congestion. Also check the `Sbr.TxShed` measurements to see which requests are being shed.

## Sbr.StackQueueFull

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** StackEvents discarded due to the SBR's task queue being full.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR discards a StackEvent due to its task queue being full.

**Measurement Scope:** Server Group

**Measurement Dimension:** Arrayed by subresource

**Recovery:** Any counts for this measurement should be investigated. Counts for this measurement indicate that the SBR may be congested. Inspect the alarms for the SBR for more information regarding the severity of the congestion. The [Sbr.TxError](#) measurement will also show counts when this measurement shows counts.

## Sbr.TxShedCreates

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** The number of load shed error responses sent that indicate creation operations shed during the collection interval. Creation operations are shed during minor congestion.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR transmits a load shed error response.

**Measurement Scope:** Server Group

**Recovery:** Any counts for this measurement should be investigated. Counts for this measurement indicate that the SBR may be congested. Inspect the alarms for the SBR for more information regarding the severity of the congestion. The [Sbr.TxError](#) measurement will also show counts when this measurement shows counts. Another associated measurement, [Sbr.RxIngressMsgQueueAvg](#), shows the average percentage of queue length utilization, which is used to determine congestion.

## Sbr.TxShedWrites

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** The number of load shed error responses sent that indicate update operations shed during the collection interval. Update operations are shed during major congestion.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR transmits a load shed error response.

**Measurement Scope:** Server Group

**Recovery:** Any counts for this measurement should be investigated. Counts for this measurement indicate that the SBR may be congested. Inspect the alarms for the SBR for more information regarding the severity of the congestion. The [Sbr.TxError](#) measurement will also show counts when this measurement shows counts. Another associated measurement, [Sbr.RxIngressMsgQueueAvg](#), shows the average percentage of queue length utilization, which is used to determine congestion.

## Sbr.TxShedReads

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** The number of load shed error responses sent that indicate read operations shed during the collection interval. Read operations are shed during critical congestion.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR transmits a load shed error response.

**Measurement Scope:** Server Group

**Recovery:** Any counts for this measurement should be investigated. Counts for this measurement indicate that the SBR may be congested. Inspect the alarms for the SBR for more information regarding the severity of the congestion. The [Sbr.TxError](#) measurement will also show counts when this measurement shows counts. Another associated measurement, [Sbr.RxIngressMsgQueueAvg](#), shows the average percentage of queue length utilization, which is used to determine congestion.

## Sbr.TxShedAll

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Partition ID)



**Description:** The number of load shed error responses indicating load shed sent during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR transmits a load shed error response.

**Measurement Scope:** Server Group

**Recovery:** Any counts for this measurement should be investigated. Counts for this measurement indicate that the SBR may be congested. Inspect the alarms for the SBR for more information regarding the severity of the congestion. The [Sbr.TxError](#) measurement will also show counts when this measurement shows counts.

### Sbr.TxShedCreatesTot

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The system wide number of load shed error responses for create operations during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time the SBR transmits a load shed error response for a create operation.

**Measurement Scope:** Server Group

**Recovery:** No action required

### Sbr.TxShedWritesTot

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The system wide number of load shed error responses for write operations during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time the SBR transmits a load shed error response for a write operation.

**Measurement Scope:** Server Group

**Recovery:** No action required

### Sbr.TxShedReadsTot

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The system wide number of load shed error responses for read operations during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time the SBR transmits a load shed error response for a read operation.

**Measurement Scope:** Server Group

**Recovery:** No action required

### Sbr.TxShedAllTot

**Measurement Group:** SBR Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The system wide number of load shed error responses for all operations during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** Each time the SBR transmits a load shed error response for any operation.

**Measurement Scope:** Server Group

**Recovery:** No action required

## Session Binding Repository (SBR) Performance measurements

The "SBR Performance" measurement group contains measurements that provide performance information that is specific to the SBR application. Counts for various expected/normal messages and events are included in this group. Measurements such as the following are included.

**Table 85: SBR Performance Measurement Report Fields**

Measurement Tag	Description	Collection Interval
Sbr.RxCreate	Number of create requests received during the collection interval	5 min
Sbr.RxUpdate	Number of update requests received during the collection interval	5 min
Sbr.RxRead	Number of read requests received during the collection interval	5 min

Measurement Tag	Description	Collection Interval
Sbr.RxDelete	Number of delete requests received during the collection interval	5 min
Sbr.RxStatus	Number of status requests received during the collection interval	5 min
Sbr.TxSuccess	Number of success responses sent during the collection interval	5 min
Sbr.RxReqRatePeak	Maximum number of transactions/second processed by the SBR during the reporting interval	5 min
Sbr.RxServTimeAvg	Average transaction service time in microseconds during the reporting interval	5 min
Sbr.RxServTimePeak	Peak transaction service time in microseconds during the reporting interval	5 min
Sbr.EvStaleRecRemoved	Number of stale session binding records cleaned by the audit procedure during the reporting interval	5 min
Sbr.EvCreateUpdateMod	Number of create operations turned into update operations during the reporting interval	5 min
Sbr.EvAvgSessionAge	Average age of all current session bindings	5 min
Sbr.RxReqRateAvg	Average of all message processing rate samples taken during the collection interval	5 min
Sbr.EvSchdStaleRec	Expected number of stale session bindings scheduled for deletion	5 min
Sbr.EvStaleRecRevived	Number of session bindings older than the mostly age that have their timestamps refreshed to the current time	5 min
Sbr.EvMostlyStaleSessPartition	Number of session bindings older than the mostly stale age in each partition	5 min
Sbr.EvAvgSessionAgePartition	Average age of session binding of a partition	5 min

Measurement Tag	Description	Collection Interval
Sbr.RxIngressMsgQueuePeak	Peak SBR Ingress Message Queue utilization measured during the collection interval	5 min
Sbr.RxIngressMsgQueueAvg	Average SBR Ingress Message Queue utilization measured during the collection interval	5 min

### Sbr.RxCreate

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of create requests received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application receives a create request.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxUpdate

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of update requests received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application receives an update request.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxRead

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of read requests received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application receives a read request.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxDelete

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of delete requests received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application receives a delete request.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxStatus

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of status requests received during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application receives a status request.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.TxSuccess

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of success responses sent during the collection interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application sends a success response.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxReqRatePeak

**Measurement Group:** SBR Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The maximum number of transactions/second processed by the SBR during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is maximum number of transactions/second processed by the SBR application during the collection interval.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxServTimeAvg

**Measurement Group:** SBR Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average transaction service time in microseconds during the reporting interval

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the average transaction service time in microseconds processed by the SBR application.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxServTimePeak

**Measurement Group:** SBR Performance

**Measurement Type:** Max

**Measurement Dimension:** Single

**Description:** The peak transaction service time in microseconds during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the peak transaction service time in microseconds processed by the SBR application.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.EvStaleRecRemoved

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of stale session binding records cleaned by the audit procedure during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application removes a stale session binding record during the audit procedure. This measurement only shows counts in the collection interval that occurs immediately after the audit has run.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.EvCreateUpdateMod

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of create operations turned into update operations during the reporting interval.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time the SBR application turns a create operation into an update operation. That is, it finds a pre-existing sessionId.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.EvAvgSessionAge

**Measurement Group:** SBR Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average age in seconds of all current session bindings.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the average age of all current session bindings processed by the SBR application. This measurement only shows counts in the collection interval that occurs immediately after the audit has run.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxReqRateAvg

**Measurement Group:** SBR Performance

**Measurement Type:** Average

**Measurement Dimension:** Single

**Description:** The average message processing rate per second.

**Collection Interval:** 5 min

**Peg Condition:** The average of all message processing rate samples per second taken during the collection interval.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.EvSchdStaleRec

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The expected number of stale session bindings scheduled for deletion.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the expected number of stale session bindings to be deleted during the next stale session binding record audit. This measurement only shows counts in the collection interval that occurs immediately after the audit has run.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.EvStaleRecRevived

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single



**Description:** The number of session bindings older than the "mostly age" that have their timestamps refreshed to the current time.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time a session binding that is older than the "mostly stale" age has its timestamp refreshed to the current time.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.EvMostlyStaleSessPartition

**Measurement Group:** SBR Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** The number of session bindings older than the "mostly stale" age in each partition.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is incremented by one each time a session binding becomes older than the "mostly stale" age. This measurement only shows counts in the collection interval that occurs immediately after the audit has run.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.EvAvgSessionAgePartition

**Measurement Group:** SBR Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** The average age in seconds of session binding of a partition.

**Collection Interval:** 5 min

**Peg Condition:** This measurement will be computed during each partition's audit process and updated appropriately. This measurement only shows counts in the collection interval that occurs immediately after the audit has run.

**Measurement Scope:** Server Group

**Recovery:** None required

### Sbr.RxIngressMsgQueuePeak

**Measurement Group:** SBR Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** The peak SBR Ingress Message Queue utilization measured during the collection interval

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the peak ingress message queue utilization by the SBR application.

**Measurement Scope:** Server Group

**Recovery:** None required

## Sbr.RxIngressMsgQueueAvg

**Measurement Group:** SBR Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (by Partition ID)

**Description:** The average SBR Ingress Message Queue utilization in percent measured during the collection interval. This measurement, if it goes above 85% percent, will trigger a congestion alarm.

**Collection Interval:** 5 min

**Peg Condition:** This measurement is the average ingress message queue utilization in percent by the SBR application.

**Measurement Scope:** Server Group

**Recovery:** None required

## SS7 Exception Measurements

Table 86: 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 can not be mapped to any SS7 MP in topology	30 min

### Ss7TxFailedCA

**Measurement Group:** SS7 Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of MAP response messages successfully transferred from SS7 TCAP layer to ComAgent layer

**Collection Interval:** 30 min

**Peg Condition:** When TCAP layer successfully forwards message to Communication Agent.

**Measurement Scope:** Network, NE, Server

**Recovery:**

Values in this measurement provide a measure of number of TCAP messages send failed to Communication Agent. Non-zero value for this measurement tag represents resource usage issues on the server. Check for any related additional Events or Alarms from the server.

## Ss7TxMpUnkDiscard

**Measurement Group:** SS7 Exception

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Unknown SS7 MP ID. Failed to transfer MAP response message. MP ID from origination transaction ID can not be mapped to any SS7 MP in topology

**Collection Interval:** 30 min

**Peg Condition:** When TCAP layer fails to find other XG SS7 MP information in database.

**Measurement Scope:** Network, NE, Server

**Recovery:**

Values in this measurement provide a measure of number of TCAP messages discarded by TCAP layer when it is not able to find the XG SS7 MP information. Non-zero value for this measurement tag represents resource usage issues on the server. Check for any related additional Events or Alarms from the server.

## SS7 Performance Measurements

Table 87: SS7 Performance Measurement Report Fields

Measurement Tag	Description	Collection Interval
Ss7TxSuccCA	Number of MAP response messages successfully transferred from SS7 TCAP layer to comagent layer	30 min

## Ss7TxSuccCA

**Measurement Group:** SS7 Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of MAP response messages successfully transferred from SS7 TCAP layer to ComAgent layer.

**Collection Interval:** 30 min

**Peg Condition:** When TCAP layer successfully forwards message to Communication Agent.

**Measurement Scope:** Network, NE, Server

**Recovery:**

Values in this measurement provides a measure of number of TCAP messages forwarded to Communication Agent for routing to other XG SS7 Stack

## Transport Exception measurements

The Transport Exception measurement group contains measurements that provide information about exceptions and unexpected events related to the Transport Manager.

Measurement Tag	Description	Collection Interval
RxTrFarEndClose	Number of times the far-end closed the association	30 min
EvTrManClose	Number of times the 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.	30 min

Measurement Tag	Description	Collection Interval
	The number of times open attempt on UDP socket in Listen Mode failed on the Transport.	
TxTrSendFail	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.	30 min
RxTrRcvFailed	The number of times an SCTP receive attempt failed on the transport. Failure to receive message via SCTP may result in a message being discarded.	30 min
EvTrSockInitFail	Number of times the socket initialization failed	30 min
TmSingleTransQueueFull	The number of egress messages that were discarded because the singleTransport Writer Queue was full.	30 min
EvSctpAdjIPToDwn	Number of times configured IP Address of an Adjacent Node goes from Available to Unavailable.	30 min
EvSctpTransRej	Number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.	30 min

## RxTrFarEndClose

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times the far end closed the SCTP connection

**Collection Interval:** 30 min

**Peg Condition** Each time the far-end of the association closes the association by sending either SHUTDOWN or ABORT

**Measurement Scope:** NE, Server

**Recovery:**

1. If the closing of the association was expected, no further action is necessary - the association will be recovered as soon as the far-end is ready to connect again.
2. If the closing of the association was not expected:
  - a) Transport status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Look in the event history at **Main Menu > Alarms & Events > View History** Event 19404 - Far-end closed the Transport to determine exactly when the far-end closed the association.
  - c) Look for other events for the association or MP server in the event history.
  - d) Verify that IP connectivity still exists between the MP server and the SG.
  - e) Verify whether the far-end of the association is undergoing maintenance.

**EvTrManClose**

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times the Transport was manually closed. This includes manual changes of the transport administrative state that cause the transport to transition from APP-UP to Disabled.

**Collection Interval:** 30 min

**Peg Condition** Each time a manual change is made to the transport administrative state from Enabled to Blocked or from Enabled to Disabled, causing the transport to transition out of APP-UP protocol state.

**Note:** This condition has a special meaning for SS7/M3UA where it is linked with ASP-UP.

**Measurement Scope:** NE, Server

**Recovery:**

1. If the transport is known to be under maintenance, then no further action is necessary.
2. If the closing of the association was not expected:
  - a) Transport status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Look in the event history at **Main Menu > Alarms & Events > View History** Event 19406 - Local Transport maintenance state change, which shows the manual transport state transitions and contains a time-stamp of when the change occurred.
  - c) The security logs at **Main Menu > Log Files > Security Logs History** can be searched using the time-stamp from the event history log to determine which login performed the manual state change on the association.
  - d) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**EvTrNoRespClose**

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times the transport was closed due to lack of response from the far end, including lack of response to any signaling sent on the transport.

**Collection Interval:** 30 min

**Peg Condition** Each time an established Transport is closed by the MP server due to lack of response at the SCTP level from the far-end of the association

**Measurement Scope:** NE, Server

**Recovery:**

1. If all is well, this measurement should have a zero value. If non-zero, the association has been closed due to lack of response from the far-end. The MP server will begin periodic attempts to reconnect to the SG.
2. Otherwise:
  - a) Transport status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Look in the event history at **Main Menu > Alarms & Events > View History** Event 19405 - Transport closed due to a lack of response (refer to the *DSR Alarms and KPIs Reference* for details about this event).
  - c) Verify IP connectivity between the MP server and the SG.
  - d) Determine if the far-end of the association is congested, possibly causing slow response times on the association.
  - e) Check the IP network between the MP server and the SG for excessive retransmissions.
  - f) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvTrCnxFail

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:**

- The number of times the SCTP connection attempt failed on the transport. This includes only unsuccessful attempts to connect/accept SCTP connections. It does not include failure of established connections.
- The number of times open attempt on UDP socket in Listen Mode failed on the Transport.

**Collection Interval:** 30 min

**Peg Condition**

- Each time an SCTP connect attempt fails
- Each time an UDP open attempt in Listen mode fails
- Each time an SCTP open attempt in Listen mode fails

**Measurement Scope:** NE, Server

**Recovery:**

1. If all is well, this measurement should have a zero value. A non-zero value indicates that the MP server has attempted to connect to the Peer IP Address at least once and failed to establish the SCTP connection.
2. Otherwise:
  - a) Transport status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Look in the event history at **Main Menu > Alarms & Events > View History** Event 19402 - Failed to connect Transport, which provides more details as to the actual cause of the failure.
  - c) Verify that the Adjacent Node that represents the far-end of the association is configured with the correct IP address at **Main Menu > Transport Manager > Configuration > Adjacent Node**.
  - d) Verify that the remote port configured at **Main Menu > Transport Manager > Configuration > Transport** for the association correctly identifies the port that the Adjacent Node is listening on for SCTP connections.
  - e) Verify the IP network connectivity between the MP server and the Adjacent Node.
  - f) If the SG must be configured to connect to the MP server's IP address and port, verify that the SG configuration matches the association configuration at **Main Menu > Transport Manager > Configuration > Transport**.
  - g) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TxTrSendFail

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times the SCTP/UDP send failed for signaling on the transport. This includes sending of any messages on an established transport or UDP socket.

**Collection Interval:** 30 min

**Peg Condition** Each time an attempt to send signaling DATA fails for any reason and the information being sent cannot be mapped to a specific transport

**Measurement Scope:** NE, Server

### Recovery:

1. If all is well, this measurement should have a zero value. A non-zero value indicates that an attempt to send a message to the far-end on this Transport has failed. Normally this happens if the far-end cannot keep up with the rate of messages being sent from all links on the association.
2. Otherwise:
  - a) Transport status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Look in the event history at **Main Menu > Alarms & Events > View History** Event 19407 - Failed to send Transport DATA Message, which gives more information about exactly what caused the failure to send.
  - c) Verify that the IP network between the MP server and the Adjacent Node is functioning as expected.
  - d) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.



## RxTrRecvFailed

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times an SCTP/UDP receive attempt failed on the transport. Failure to receive message via SCTP may result in a message being discarded

**Collection Interval:** 30 min

**Peg Condition** Each time an SCTP receive fails when the far-end attempted to send data, but the data cannot be received due to an invalid message length

**Measurement Scope:** NE, Server

### Recovery:

1. If all is well, this measurement should have a zero value. A non-zero value indicates that the far-end is sending data that is malformed.
2. Otherwise:
  - a) Transport status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Look in the event history at **Main Menu > Alarms & Events > View History** Event 19403 - received malformed SCTP message (invalid length), which gives more information about exactly what caused the failure.
  - c) Try to bring the sockets back into alignment by manually Disabling and Enabling the Transport.
  - d) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvTrSockInitFail

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times the socket initialization failed.

**Collection Interval:** 30 min

**Peg Condition** Each time one or more socket options cannot be set according to the settings in the transport's configuration set

**Measurement Scope:** NE, Server

### Recovery:

1. If all is well, this measurement should have a zero value. A non-zero value indicates some problem with association setup prior to attempting to connect the association.
2. If this issue occurs, look in **Main Menu > Alarms & Events > View History** for Event 19401 - Failed to configure Transport, which provides details about exactly what part of the configuration failed.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmSingleTransQueueFull

**Measurement Group:** Transport Exception

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of egress messages that were discarded because the single Transport Writer Queue was full.

**Collection Interval:** 30 min

**Peg Condition** Check whether the single peers transmit data queue limit has reached its max limit (1000). If max limit is reached or exceeded then peg the measurement and discard the low priority events.

**Measurement Scope:** NE, Server

**Recovery:**

1. This measurements indicates that the Transport is backed up and there could be messages that will get discarded. If it's above the defined critical threshold, it results in generating Alarm 19408 - Single Transport Egress-Queue Utilization (refer to the *DSR Alarms and KPIs Reference* for details about this alarm).
2. The percent utilization of the MP's Transport Writer Queue is approaching its maximum capacity. If this problem persists and the queue reaches 100% utilization, all new egress messages from the Transport will be discarded.

This alarm should not normally occur when no other congestion alarms are asserted. This may occur for a variety of reasons:

1. An IP network or Adjacent node problem may exist preventing SCTP from transmitting messages into the network at the same pace that messages are being received form the network.
  2. The SCTP Association Writer process may be experiencing a problem preventing it from processing events from its event queue. The alarm log should be examined form **Main Menu > Alarms & Events**.
  3. If one or more MPs in a server site have failed, the traffic will be distributed amongst the remaining MPs in the server site. MP server status can be monitored form **Main Menu > Status & Control > Server Status**.
  4. The mis-configuration of Adjacent Node IP routing may result in too much traffic being distributed to the MP. Each MP in the server site should be receiving approximately the same ingress transaction per second.
  5. There may be an insufficient number of MPs configured to handle the network traffic load. The ingress traffic rate of each MP can be monitored from **Main Menu > Status & Control > KPI Display**. If all MPs are in a congestion state then the offered load to the server site is exceeding its capacity.
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvSctpAdjPToDwn

**Measurement Group:** Transport Exception

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times a configured IP Address of an Adjacent Node goes from Available to Unavailable.

**Collection Interval:** 30 min

**Peg Condition** Each time reachability to a configured IP address of an Adjacent Node is lost, indicating a fault in the path to that address was detected.

**Measurement Scope:** NE, Server

**Recovery:**

1. If all is well, this measurement should have a zero value. A non-zero value indicates a path fault to that address was detected.
2. Otherwise:
  1. Check the event history log at **Main Menu > Alarms & Events > View History**, looking for Event 19409 - Message Rejected by ACL Filtering which provide more details as to the actual cause of the failure.
  2. Verify the Adjacent Node that represents the far-end of the association is configured with the correct address at **Main Menu > Transport Manager > Configuration > Adjacent Node**.
  3. Verify the IP network connectivity between the MP server and the Adjacent Node's IP address using a ping or traceroute command
3. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## EvSctpTransRej

**Measurement Group:** Transport Exception

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of times SCTP Transport has been rejected due to remote IP addresses validation failure based on SCTP Multihoming mode. This is valid only for SCTP Transports.

**Collection Interval:** 30 min

**Peg Condition** Each time the association has been rejected due to IP address validation failure in the SCTP INITs/INIT-ACKs transmitted by the Adjacent Node.

**Measurement Scope:** NE, Server

**Recovery:**

1. 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.
2. 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

**Measurement Group:** Transport Usage

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:**

- The number of times the SCTP connection was successfully established on the transport.
- The number of times the UDP socket in Listen Mode was opened successfully on the Transport.

**Collection Interval:** 30 min

**Peg Condition**

- Each time the SCTP association reaches the APP-UP protocol state (i.e. the connection is successfully ESTABLISHED)
- Each time the UDP socket in Listen Mode was opened successfully

**Measurement Scope:** NE, Server

**Recovery:**

1. If the association is expected to have connected during the measurement reporting interval, no action is necessary.
2. Otherwise:
  - a) Transport status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Look in the event history at **Main Menu > Alarms & Events > View History** events related to the association or the MP server to determine what may have caused the Transport to fail.
  - c) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmTrEnaNotUp

**Measurement Group:** Transport Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of seconds during the reporting interval during which the transport was in the Enabled administrative state but was not in APP-UP protocol state. When the transport is Enabled, the desired protocol state is APP-UP. This measurement indicates the amount of time during the reporting interval for which the association was not in the desired protocol state.

**Collection Interval:** 30 min

**Peg Condition** Time shall be accumulated for this measurement during the collection interval when all of the following are true:

- the association is in the ENABLED administrative state
- the association is not in the ASP-UP protocol state for M3UA and APP-UP for other Plugins.

**Measurement Scope:** NE, Server

**Recovery:**

1. If all is well, this measurement should have a zero value. A non-zero value indicates that the MP server has attempted to connect to the Peer IP Address at least once and failed to establish the SCTP connection.
2. Otherwise:
  - a) Association status can be viewed at **Main Menu > Transport Manager > Maintenance > Transport**.
  - b) Verify that the Adjacent Server that represents the far-end of the association is configured with the correct IP address at **Main Menu > Transport Manager > Configuration > Adjacent Node**.
  - c) Verify that the remote port configured at **Main Menu > Transport Manager > Configuration > Transport** for the association correctly identifies the port that the SG is listening on for SCTP connections.
  - d) Verify the IP network connectivity between the MP server and the SG.
  - e) If the Adjacent Node must be configured to connect to the MP server's IP address and port, verify that the Adjacent Node configuration matches the association configuration at **Main Menu > Transport Manager > Configuration > Transport**.
  - f) Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

**RxTmSctpBufAvg****Measurement Group:** Transport Usage**Measurement Type:** Average**Measurement Dimension:** Arrayed (per Transport)**Description:** The Average Value of the number of bytes in SCTP RX Window**Collection Interval:** 5 min

**Peg Condition** Every Second, retrieve the Rx socket buffer occupancy by using the "getsockopt" functions and then calculates and peg the Average buffer occupancy, during the last 5 min window. To calculate the current RX Buffer Occupancy, we subtract the number of unused bytes in the buffer from the initial default RX buffer size set during setsockopt at the time of socket creation.

**Measurement Scope:** NE, Server**Recovery:**

No action required. This is debug statistical information retrieved from getsockopt (SO\_RCVBUF) interface.

**RxTmSctpBufPeak****Measurement Group:** Transport Usage**Measurement Type:** Max**Measurement Dimension:** Arrayed (per Transport)**Description:** The Peak Value of the number of bytes in SCTP RX Window**Collection Interval:** 5 min

**Peg Condition** Every Second, retrieve the Rx socket buffer occupancy by using the "getsockopt" functions and then calculates and peg the Maximum buffer occupancy during the last 5 min window. To calculate the current RX Buffer Occupancy, we subtract the number of unused bytes in the buffer from the initial default RX buffer size set during setsockopt at the time of socket creation.

**Measurement Scope:** NE, Server

**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

Measurement Tag	Description	Collection Interval
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
SctpTransRTOPeak	The peak value of retransmission timeout in use for the SCTP Transport address	30 min
SctpTransRTOAvg	The average value of retransmission timeout in use for the SCTP Transport address	30 min

## TxTrOctets

**Measurement Group:** Transport Performance

**Measurement Type:** Simple

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The number of octets sent on the SCTP/UDP Transport. It does not include SCTP, UDP, IP, or Ethernet headers.

**Collection Interval:** 30 min

**Peg Condition** Each time a DATA/non-DATA message is successfully sent on the transport (incremented by the number of octets in the message).

**Measurement Scope:** NE, Server

**Recovery:**

No action required. This measurement indicates the level of signaling octets that have been sent over the association during the reporting interval.

## RxTrOctets

**Measurement Group:** Transport Performance

**Measurement Type:** Simple



**Measurement Dimension:** Arrayed (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** Each time a DATA/non-DATA message is successfully received on the transport (incremented by the number of octets in the message).

**Measurement Scope:** NE, Server

**Recovery:**

No action required. This measurement indicates the level of signaling octets that have been received over the association during the reporting interval.

### TmSingleTransQueuePeak

**Measurement Group:** Transport Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The peak single Transport Writer Queue utilization (0-100%) measured during the collection interval (averaged over 2 sec).

**Collection Interval:** 5 min

**Peg Condition** Transport's Queue is registered as a Stack Resource, StackResourceManager thread monitors and updates the maximum Transport Queue utilization sample taken during the collection interval for affected Transport.

**Measurement Scope:** NE, Server

**Recovery:**

1. Transport single queue utilization depicts the SCTP or UDP Transport Writer Queues utilization. This is a measure of how fast the Transport queue is being processed. It indicates the maximum depth of queue over the monitored interval. It is primarily intended to assist in evaluating the 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.
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.
  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.
5. Contact [My Oracle Support \(MOS\)](#) for assistance if needed.

## TmSingleTransQueueAvg

**Measurement Group:** Transport Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The average single Transport (SCTP/UDP) Transport Writer Queue utilization (0-100%) measured during the collection interval (averaged over 2 sec).

**Collection Interval:** 30 min

**Peg Condition** Transport's Queue is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport.

**Measurement Scope:** NE, Server

**Recovery:**

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

## SctpTransPeerCWNDPeak

**Measurement Group:** Transport Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The peak value of congestion window size recorded for the peer of a SCTP transport during the collection interval.

**Collection Interval:** 30 min

**Peg Condition** This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. Sctp status information will be retrieved from socket option "SCTP\_STATUS" through sctp\_opt\_info API.

**Measurement Scope:** NE, Server

**Recovery:**

This is debug information, which is retrieved from sctp socket option (SCTP\_STATUS), It indicates Peak of congestion window recorded for the peer address.

## SctpTransPeerCWNDAvg

**Measurement Group:** Transport Exception

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The average of congestion window size recorded for the peer of a Sctp transport during the collection interval.

**Collection Interval:** 30 min

**Peg Condition** This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport. Sctp status information will be retrieved from socket option "SCTP\_STATUS" through sctp\_opt\_info API.

**Measurement Scope:** NE, Server

**Recovery:**

This is debug information, which is retrieved from sctp socket option (SCTP\_STATUS); It indicates Average of congestion window recorded for the peer address.

## SctpTransPeerSRTTPeak

**Measurement Group:** Transport Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The peak value of smoothed round trip time for the Sctp Transport address during the collection interval.

**Collection Interval:** 30 min

**Peg Condition** This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. Sctp status information will be retrieved from socket option "SCTP\_STATUS" through sctp\_opt\_info API.

**Measurement Scope:** NE, Server

**Recovery:**

This is debug information, which is retrieved from sctp socket option (SCTP\_STATUS).

## SctpTransPeerSRTTAvg

**Measurement Group:** Transport Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The average value of smoothed round trip time for the SCTP Transport address during the collection interval.

**Collection Interval:** 30 min

**Peg Condition** This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. SCTP status information will be retrieved from socket option "SCTP\_STATUS" through sctp\_opt\_info API.

**Measurement Scope:** NE, Server

**Recovery:**

This is debug information, which is retrieved from sctp socket option (SCTP\_STATUS).

## SctpTransUnAkedDataPeak

**Measurement Group:** Transport Performance

**Measurement Type:** Max

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The peak number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval.

**Collection Interval:** 30 min

**Peg Condition** This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Peak value for affected Transport. SCTP status information will be retrieved from socket option "SCTP\_STATUS" through sctp\_opt\_info API.

**Measurement Scope:** NE, Server

**Recovery:**

This is debug information, which is retrieved from sctp socket option (SCTP\_STATUS).

## SctpTransUnAkedDataAvg

**Measurement Group:** Transport Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The average number of unacknowledged DATA chunks pending for the peer of a SCTP Transport address during the collection interval.

**Collection Interval:** 30 min

**Peg Condition** This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport. SCTP status information will be retrieved from socket option "SCTP\_STATUS" through sctp\_opt\_info API.

**Measurement Scope:** NE, Server

**Recovery:**

This is debug information, which is retrieved from sctp socket option (SCTP\_STATUS).

### SctpTransRTOPeak

**Measurement Group:** Transport Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The peak 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 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).

### SctpTransRTOAvg

**Measurement Group:** Transport Performance

**Measurement Type:** Average

**Measurement Dimension:** Arrayed (per Transport)

**Description:** The average value of retransmission timeout in use for the SCTP Transport address.

**Collection Interval:** 30 min

**Peg Condition** This Metric is registered as a Stack Resource, StackResourceManager thread monitors and updates the metric Average value for affected Transport. SCTP status information will be retrieved from socket option "SCTP\_STATUS" through sctp\_opt\_info API.

**Measurement Scope:** NE, Server

**Recovery:**

This is debug information, which is retrieved from sctp socket option (SCTP\_STATUS).

## Topology Hiding Performance measurements

The Topology Hiding Performance measurement report contains measurements providing information on the number of messages that the various topology hiding methods were applied

Measurement Tag	Description	Collection Interval
TxPathTopology	Number of messages given path topology hiding treatment on messages routed to an Untrusted Network.	5 min
RxPathTopology	Number of messages given path topology hiding treatment on messages received from an Untrusted Network.	5 min
EvHssTopology	Number of messages given S6a/S6d HSS topology hiding treatment.	5 min
EvMmeTopology	Number of messages given MME/SGSN topology hiding treatment.	5 min
EvMmeTopologyException	Number of messages given exception treatment while applying MME/SGSN topology hiding treatment.	5 min
EvHssTopologyException	Number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment.	5 min
EvAfTopologyException	Number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment.	5 min
EvAfTopologyExceptionMp	Number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment.	5 min
EvAfTopologyMp	Number of messages given S9 AF/pCSCF topology hiding treatment.	5 min
EvAfTopology	Number of messages given S9 AF/pCSCF topology hiding treatment.	5 min
EvPcrfTopologyException	Number of messages given exception treatment while applying S9 PCRF topology hiding treatment.	5 min
EvPcrfTopologyExceptionMp	Number of messages given exception treatment while applying S9 PCRF topology hiding treatment.	5 min
EvPcrfTopologyMp	Number of messages given S9 PCRF topology hiding treatment.	5 min

Measurement Tag	Description	Collection Interval
EvPcrfTopology	Number of messages given S9 PCRF topology hiding treatment.	5 min
TxPathTopologyMp	Number of messages given path topology hiding treatment on messages routed to an Untrusted Network.	5 min
RxPathTopologyMp	Number of messages given path topology hiding treatment on messages received from an Untrusted Network.	5 min
EvHssTopologyMp	Number of messages given S6a/S6d HSS topology hiding treatment.	5 min
EvMmeTopologyMp	Number of messages given MME/SGSN topology hiding treatment.	5 min
EvMmeTopologyMpException	Number of messages given exception treatment while applying MME/SGSN topology hiding treatment.	5 min
EvHssTopologyMpException	Number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment.	5 min

## TxPathTopology

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** Number of messages given path topology hiding treatment on messages routed to an Untrusted Network.

**Collection Interval:** 5 min

**Peg Condition:** Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively.

**Measurement Scope:** Site

No action required

## RxPathTopology

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** Number of messages given path topology hiding treatment on messages received from an Untrusted Network.

**Collection Interval:** 5 min

**Peg Condition:** Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTR and ATR respectively.

**Measurement Scope:** Site

No action required

### EvHssTopology

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** Number of messages given S6a/S6d HSS topology hiding treatment.

**Collection Interval:** 5 min

**Peg Condition:** Each time S6a/S6d HSS TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR.

**Note:** If S6a/S6d HSS TH treatment is applied to more than one AVP in a message, the counter is only incremented once.

**Measurement Scope:** Site

No action required

### EvMmeTopology

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** Number of messages given MME/SGSN topology hiding treatment.

**Collection Interval:** 5 min

**Peg Condition:** Each time MME/SGSN TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR.

**Note:** If MME/SGSN TH treatment is applied to more than one AVP in a message, the counter is only incremented once.

**Measurement Scope:** Site

No action required

### EvMmeTopologyException

**Measurement Group:** Topology Hiding Performance



**Measurement Type:** Simple

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

**Description:** The number of messages given exception treatment while applying MME/SGSN topology hiding treatment.

**Collection Interval:**

**Peg Condition:** When MME/SGSN TH exception treatment is applied to either a Request or Answer message at RTH and ATH trigger points.

**Recovery:**

Ensure that all MME/SGSN hostnames to be hidden are present in the MME/SGSN Configuration Set

### EvHssTopologyException

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** The number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment.

**Collection Interval:** 5 min

**Peg Condition:** When S6a/S6d HSS TH exception treatment is applied to Request at RTH trigger point.

**Recovery:**

Check with the HSS Vendor and request the vendor to be RFC 6733 Compliant.

### EvPcrfTopology

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** The number of messages given S9 PCRF topology hiding treatment

**Collection Interval:** 5 min

**Peg Condition:** When S9 PCRF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR

**Recovery:**

No action necessary

### EvPcrfTopologyMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages given S9 PCRF topology hiding treatment

**Collection Interval:** 5 min

**Peg Condition:** When S9 PCRF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR

**Recovery:**

No action necessary

## EvPcrfTopologyExceptionMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages given exception treatment while applying S9 PCRF topology hiding treatment.

**Collection Interval:** 5 min

**Peg Condition:** When S9 PCRF TH treatment is applied to either a Request or Answer message at RTH, RTR, or ATH trigger points and "PCRF ACTual Name Not Found" Action is invoked

**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

**Recovery:**

1. Check with the PCRF Vendor and request them to be RFC 6733 Compliant if the format of the Session-ID AVP is not RFC 6733 compliant.

2. Check the configuration of TH Host Names and ensure that all PCRF host names to hidden are present in the S9 PCRF TH Configuration Set.

## EvAfTopology

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** The number of messages given S9 AF/pCSCF topology hiding treatment

**Collection Interval:** 5 min

**Peg Condition:** When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR

**Note:** If S9 AF/pCSCF TH treatment is applied to more than one AVP in a message, the counter is only incremented once.

**Recovery:**

No action necessary

## EvAfTopologyMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages given S9 AF/pCSCF topology hiding treatment

**Collection Interval:** 5 min

**Peg Condition:** When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR

**Note:** If S9 AF/pCSCF TH treatment is applied to more than one AVP in a message, the counter is only incremented once.

**Recovery:**

No action necessary

## EvAfTopologyExceptionMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment

**Collection Interval:** 5 min

**Peg Condition:** When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at RTH, RTR, or ATH trigger points and "AF/pCSCF Actual Name Not Found" Action is invoked

**Recovery:**

No action necessary

### EvAfTopologyException

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages given exception treatment while applying S9 AF/pCSCF topology hiding treatment

**Collection Interval:** 5 min

**Peg Condition:** When S9 AF/pCSCF TH treatment is applied to either a Request or Answer message at RTH, RTR, or ATH trigger points and "AF/pCSCF Actual Name Not Found" Action is invoked

**Recovery:**

No action necessary

### TxPathTopologyMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of messages given path topology hiding treatment on messages routed to an Untrusted Network.

**Collection Interval:** 5 min

**Peg Condition:** Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTH and ATH respectively.

**Measurement Scope:** Site

No action required

### RxPathTopologyMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of messages given path topology hiding treatment on messages received from an Untrusted Network.

**Collection Interval:** 5 min

**Peg Condition:** Each time Path TH treatment is applied to either a Request or Answer message at TH trigger points RTR and ATR respectively.

**Measurement Scope:** Site

No action required

### EvHssTopologyMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

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

**Description:** Number of messages given S6a/S6d HSS topology hiding treatment.

**Collection Interval:** 5 min

**Peg Condition:** Each time S6a/S6d HSS TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR.

**Note:** If S6a/S6d HSS TH treatment is applied to more than one AVP in a message, the counter is only incremented once.

**Measurement Scope:** Site

No action required

### EvMmeTopologyMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** Number of messages given MME/SGSN topology hiding treatment.

**Collection Interval:** 5 min

**Peg Condition:** Each time MME/SGSN TH treatment is applied to either a Request or Answer message at TH trigger points RTH, RTR, ATH, and ATR.

**Note:** If MME/SGSN TH treatment is applied to more than one AVP in a message, the counter is only incremented once.

**Measurement Scope:** Site

No action required

### EvMmeTopologyExceptionMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages given exception treatment while applying MME/SGSN topology hiding treatment.

**Collection Interval:**

**Peg Condition:** When MME/SGSN TH exception treatment is applied to either a Request or Answer message at RTH and ATH trigger points.

**Recovery:**

Ensure that all MME/SGSN hostnames to be hidden are present in the MME/SGSN Configuration Set

### EvHssTopologyExceptionMp

**Measurement Group:** Topology Hiding Performance

**Measurement Type:** Simple

**Measurement Dimension:** Single

**Description:** The number of messages given exception treatment while applying S6a/S6d HSS topology hiding treatment.

**Collection Interval:** 5 min

**Peg Condition:** When S6a/S6d HSS TH exception treatment is applied to Request at RTH trigger point.

**Recovery:**

Check with the HSS Vendor and request the vendor to be RFC 6733 Compliant.

# Appendix

# A

## Policy DRA Error Resolution Procedures

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### Topics:

- [Error Code 500.....712](#)
- [Error Code 501.....712](#)
- [Error Code 502.....713](#)
- [Error Code 2xx/3xx.....714](#)
- [Error Code 510.....714](#)
- [Error Code 511.....715](#)
- [Error Code 512.....716](#)
- [Error Code 513.....716](#)
- [Error Code 503.....717](#)
- [Error Code 505.....718](#)
- [Error Code 507.....719](#)
- [Error Code 508.....720](#)
- [Error Code 520.....720](#)
- [Error Code 521.....721](#)
- [Error Code 504.....721](#)
- [Error Code 509.....722](#)
- [Error Code 305.....723](#)
- [Error Code 305.....723](#)
- [Error Code 522.....724](#)
- [Error Code 523.....724](#)
- [Error Code 525.....725](#)
- [Error Code 506.....726](#)
- [Error Code 530.....726](#)
- [Error Code 531.....727](#)

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

**Associated Error Category:** Missing or Unconfigured APN

**Description:** Binding capable session initiation request is received with no APN.

**Associated P-DRA Alarm/Event:** Alarm 22730 - Policy DRA Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)

**Associated Measurement:** [RxBindCapMissingApn](#)

**Associated Diameter Interface / Message Type:** Gx/Gxx CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. See *CCR-I Processing with PCRF Pool* and *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA 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 DRA 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 DRA 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

**Associated Error Category:** Missing or Unconfigured APN

**Description:** Binding capable session initiation request is received with an APN, but the APN is not configured in the APN configuration.

**Associated P-DRA Alarm/Event:** Alarm 22730 - Policy DRA Configuration Error (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)

**Associated Measurement:** [RxBindCapUnknownApn](#)

**Associated Diameter Interface / Message Type:** Gx/Gxx CCR-I

**GUI Configurable:** Yes



### Recovery:

1. See *CCR-I Processing with PCRF Pool* and *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA 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 DRA 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 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 DRA > 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

**Associated Error Category:** Binding Found But Unable To Route

**Description:** Request message is received and a binding with a PRCF was found. Policy DRA can't route the request to PCRF due to DSR queue full error.

**Associated P-DRA Alarm/Event:** Event 22707 - Policy DRA 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 DRA User Guide* to investigate and understand the circumstances where this error occurs.
2. Go to the P-DRA NOAM GUI to collect information for possible root causes that may resort in the DRL queue being full:

- Go to **Main Menu > Policy DRA > 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

**Associated Error Category:** Binding Found But Unable To Route

**Description:** 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.

**Associated P-DRA Alarm/Event:** Event 22707 - Policy DRA Diameter Message Processing Failure (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** *TxPdraAnswersGeneratedForDiameterErr*

**Associated Diameter Interface / Message Type:**

- Gx/Gxx CCR-I
- Rx AAR
- Gx-Prime CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. Error code 2xx/3xx is generated by DSR routing layer for various routing errors that result in the failure of routing the Diameter request to the PCRF.
2. Go to the P-DRA NOAM GUI to check the server status from **Main Menu > Policy DRA > 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 Policy DRA SOAM GUI **Main Menu > Measurements > Report** to search for relevant measurements.

### Error Code 510

**Associated Error Category:** Binding Found But Unable To Route

**Description:** A slave session could not be routed because, on polling the slave, sessionRef was no longer in the binding database.

**Associated P-DRA Alarm/Event:** N/A

**Associated Measurement:** [SbrSlavePollingFail](#)

**Associated Diameter Interface / Message Type:**

- Gx/Gxx CCR-I
- Rx AAR
- Gx-Prime CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. See *Early binding Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA User Guide* to investigate and understand
2. Go to the P-DRA SOAM GUI at **Main Menu > Policy DRA > Status & Manage > Server** to check binding SBRs' status.
3. Go to the **Main Menu > Alarms & Events > View History** to check binding SBR's congestion alarm/event info to determine a relation with the error.
4. Go to the Policy DRA SOAM GUI **Main Menu > Measurements > Report** to search for relevant measurements. Select, but not limited to, "SBR Binding Exception" Measurement Group for the measurements directly related to this error.

## Error Code 511

**Associated Error Category:** Binding Found But Unable To Route

**Description:** A slave session could not be routed because, on polling the master, sessionRef was no longer in the binding database.

**Associated P-DRA Alarm/Event:** N/A

**Associated Measurement:** [SbrSlavePollingFail](#)

**Associated Diameter Interface / Message Type:**

- Gx/Gxx CCR-I
- Rx AAR
- Gx-Prime CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. See *Early binding Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the P-DRA 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

**Associated Error Category:** Binding Found But Unable To Route

**Description:** A slave session could not be routed because, on polling the master, sessionRef was early too long.

**Associated P-DRA Alarm/Event:** N/A

**Associated Measurement:** *SbrEarlyTooLongSrRemoved*

**Associated Diameter Interface / Message Type:**

- Gx/Gxx CCR-I
- Rx AAR
- Gx-Prime CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. Check *Early binding Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to the P-DRA 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 Policy DRA NOAM GUI at **Main Menu > Policy DRA > Configuration > 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

**Associated Error Category:** Binding Found But Unable To Route

**Description:** A slave session could not be routed because, on polling the master, an internal error occurred.

**Associated P-DRA Alarm/Event:** N/A

**Associated Measurement:** *SbrSlavePollingFail*

**Associated Diameter Interface / Message Type:**

- Gx/Gxx CCR-I
- Rx AAR
- Gx-Prime CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. Go to the P-DRA 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

**Associated Error Category:** No Usable Keys In Binding Dependent Message

**Description:** No binding key in Binding Key Priority GUI can be matched or no key is included in the binding dependent message.

**Associated P-DRA Alarm/Event:** Event 22706 - Binding Key Not Found In Diameter Message (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** *TxPdraAnswersGeneratedForDiameterErr*

**Associated Diameter Interface / Message Type:**

- Rx AAR
- Gx-Prime CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. Check *AAR Processing* in the Error Resolution appendix of the *Policy DRA User Guide* to investigate and understand the circumstances where the error occurs.

2. Go to Policy DRA NOAM GUI at **Main Menu > Policy DRA > Configuration > 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 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.
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

**Associated Error Category:** Binding Not Found

**Description:** Binding record is not found after examining all configured binding keys in Diameter message.

**Associated P-DRA Alarm/Event:** Event 22718 - Binding Not Found for Binding Dependent Session Initiate Request (refer to the *DSR Alarms and KPIs Reference* for more information)

**Associated Measurement:** [TxPdraAnswersGeneratedForPsbrErrResp](#)

**Associated Diameter Interface / Message Type:**

- Rx AAR
- Gx-Prime CCR-I

**GUI Configurable:** Yes

**Recovery:**

1. Check *AAR Processing* in the Error Resolution appendix of the *Policy DRA User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to Policy DRA NOAM GUI at **Main Menu > Policy DRA > Configuration > 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 DRA NOAM GUI at **Main Menu > Policy DRA > Maintenance > Binding Key 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

**Associated Error Category:** Policy SBR Error

**Description:** Policy SBR Error - ComAgent timeout

**Associated P-DRA Alarm/Event:** Event 22704 - Policy DRA Communication Agent Error

**Associated Measurement:** [TxPdraErrAnsGeneratedCAFailure](#)

**Associated Diameter Interface / Message Type:**

- Gx CCR-I, CCR-U, and CCR-T
- Rx AAR, STR
- Gx-Prime CCR-I, CCR-U, and CCR-T

**GUI Configurable:** Yes

**Recovery:**

1. Check *findSessionRef Processing*, *findOrCreateBindingResult Processing*, *findOrCreateBinding Response Processing with PCRF Pool*, *findSession Response Processing*, and *AAR Processing* in the Error Resolution appendix of the *Policy DRA 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

**Associated Error Category:** Policy SBR Error

**Description:** Policy SBR Error - pSBR database error prevents pSBR from reading, writing, or deleting a record

**Associated P-DRA Alarm/Event:** Event 22711 - Policy SBR Database Error (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [TxPdraAnswersGeneratedForPsbrErrResp](#)

**Associated Diameter Interface / Message Type:**

- Gx CCR-I, CCR-U, and CCR-T
- Rx AAR, STR
- Gx-Prime CCR-I, CCR-U, and CCR-T

**GUI Configurable:** Yes

**Recovery:**

1. Check *findSessionRef Processing*, *findOrCreateBindingResult Processing*, *findOrCreateBinding Response Processing with PCRF Pool*, *findSession Response Processing*, and *AAR Processing* in the Error Resolution appendix of the *Policy DRA User Guide* to investigate and understand the circumstances where the error occurs.
2. Go to Policy DRA NOAM GUI at **Main Menu > Policy DRA > Maintenance > Policy 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 - Policy 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

**Associated Error Category:** Policy SBR Error

**Description:** Policy SBR PCRF Configuration Error - binding capable session initiation request received, but not PCRFs are configured at the site.

**Associated P-DRA Alarm/Event:** Alarm 22730 - Policy DRA Configuration Error

**Associated Measurement:** [TxPdraAnswersGeneratedConfigErr](#)

**Associated Diameter Interface / Message Type:** Gx CCR-I



**GUI Configurable:** Yes

**Recovery:**

1. Check *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA 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 DRA Configuration Error).
3. If Alarm 22730 - Policy DRA Configuration Error indicates that no PCRF are configured, configure PCRFs at the SOAM GUI at **Main Menu > Policy DRA > Configuration > PCRFs**.

## Error Code 521

**Associated Error Category:** Policy SBR Error

**Description:** Policy SBR Error - maximum number of Sessions per Binding is Exceeded that fails the binding creation for given IMSI of MSISDN key.

**Associated P-DRA Alarm/Event:** Event 22719 - Maximum Number of Sessions per Binding Exceeded (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [TxPdraAnswersGeneratedForPsbrErrResp](#)

**Associated Diameter Interface / Message Type:** Gx CCR-I, CCR-U, and CCR-T

**GUI Configurable:** Yes

**Recovery:**

1. Check *findOrCreateBindingResult Processing* and *findOrCreateBinding Response Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA 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 Policy DRA NOAM GUI at **Main Menu > Policy DRA > Maintenance > Binding Key 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

**Associated Error Category:** Policy SBR Error

**Description:** ComAgent resource unavailable when sending stack event to pSBR.

**Associated P-DRA Alarm/Event:** Event 22704 - Policy DRA Communication Agent Error (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [TxPdraErrAnsGeneratedCAFailure](#)

**Associated Diameter Interface / Message Type:**

- Gx CCR-I, CCR-U, and CCR-T
- Rx AAR, STR
- Gx-Prime CCR-I, CCR-U, and CCR-T

**GUI Configurable:** Yes

**Recovery:**

1. Check *CCR-I Processing with PCRF Pool* in the Error Resolution appendix of the *Policy DRA 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 Policy DRA SOAM GUI at **Main Menu > Policy DRA > Maintenance > Policy 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

**Associated Error Category:** Session Not Found

**Description:** Session Not Found - session record doesn't exist for given session ID.

**Associated P-DRA Alarm/Event:** Event 22705 - Policy 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 DRA 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 - Policy 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

**Associated Error Category:** Policy DRA Unavailable or Degraded

**Description:** Policy DRA Unavailable

**Associated P-DRA Alarm/Event:** Alarm 22500 - DSR Application Unavailable (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)

**Associated Measurement:** [RxApplUnavailableForRequest](#)

**Associated Diameter Interface / Message Type:**

- All Gx requests
- All Rx Requests
- All Gx-Prime Requests

**GUI Configurable:** Yes

**Recovery:**

1. Go to the P-DRA SOAM GUI at **Main Menu > Diameter > Maintenance > Applications** to verify Policy DRA's admin state is set as expected.
2. Check the **Main Menu > Diameter > Maintenance > Applications** to verify Policy DRA's Operational Status and Congestion Level. Policy DRA's Operational Status is "Unavailable" when the operator has removed Policy DRA from service (Admin State is "Disabled").
3. Check **Main Menu > Alarms & Events > View History** for relevant events or alarms related to this DA-MP server.
4. Get the measurement report from **Main Menu > Measurement > Report** for, but not limited to, measurement [RxApplUnavailableForAnswer](#).

## Error Code 305

**Associated Error Category:** Policy DRA Unavailable or Degraded

**Description:** Policy DRA Degraded

**Associated P-DRA Alarm/Event:** Alarm 22501 - DSR Application Degraded (refer to the *DSR Alarms and KPIs Reference* for details about this alarm)

**Associated Measurement:** [RxApplUnavailableForRequest](#)

**Associated Diameter Interface / Message Type:**

- All Gx requests
- All Rx Requests
- All Gx-Prime Requests

**GUI Configurable:** Yes

**Recovery:**

1. Go to the P-DRA SOAM GUI at **Main Menu > Diameter > Maintenance > Applications** to verify Policy DRA's admin state is set as expected.
2. Check the **Main Menu > Diameter > Maintenance > Applications** to verify Policy DRA's Operational Status and Congestion Level. Policy DRA's Operational Status is "Unavailable" when the operator has removed Policy DRA from service (Admin State is "Disabled").
3. Check **Main Menu > Alarms & Events > View History** for relevant events or alarms related to this DA-MP server.
4. Get the measurement report from **Main Menu > Measurement > Report** for, but not limited to, measurement [RxApplUnavailableForAnswer](#).

## Error Code 522

**Associated Error Category:** Session ID is missing from Request

**Description:** Session ID is missing from Request

**Associated P-DRA Alarm/Event:** Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [RxPdraRequestProtocolErr](#)

**Associated Diameter Interface / Message Type:**

- All Gx requests
- All Rx Requests
- All Gx-Prime Requests

**GUI Configurable:** No (Result Code 5005)

**Recovery:**

1. Check *Diameter Message Validation* and *CCR-I Processing without PCRF Pool* in the Error Resolution appendix of the *Policy DRA 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 > Measurement > Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

## Error Code 523

**Associated Error Category:** CC-Request-Type AVP is missing from CCR message

**Description:** CC-Request-Type AVP is missing from CCR message

**Associated P-DRA Alarm/Event:** Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [RxPdraRequestProtocolErr](#)

**Associated Diameter Interface / Message Type:** Gx CCR-I, CCR-U, and CCR-T

**GUI Configurable:** No (Result Code 5005)

**Recovery:**

1. Check *CCR Processing* in the Error Resolution appendix of the *Policy DRA 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 > Measurement > Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

## Error Code 525

**Associated Error Category:** Invalid AVP value in request message

**Description:** Invalid AVP value in request message

**Associated P-DRA Alarm/Event:** Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [RxPdraRequestProtocolErr](#)

**Associated Diameter Interface / Message Type:**

- All Gx requests
- All Rx Requests
- All Gx-Prime Requests

**GUI Configurable:** No (Result Code 5004)

**Recovery:**

1. Check *CCR Processing* in the Error Resolution appendix of the *Policy DRA 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 > Measurement > Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

## Error Code 506

**Associated Error Category:** Destination-Host AVP is missing in in-session request

**Description:** Destination-Host AVP is missing in in-session request

**Associated P-DRA Alarm/Event:** Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [RxPdraRequestProtocolErr](#)

**Associated Diameter Interface / Message Type:**

- Gx CCR-I, CCR-U, and CCR-T
- Rx AAR, STR
- Gx-Prime CCR-I, CCR-U, and CCR-T

**GUI Configurable:** No (Result Code 5012)

**Recovery:**

1. Check *STR Processing* and *ASR/ASA Processing* in the Error Resolution appendix of the *Policy DRA 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 > Measurement > Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

## Error Code 530

**Associated Error Category:** Unsupported Application ID

**Description:** Application ID unsupported by Policy DRA

**Associated P-DRA Alarm/Event:** Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [RxPdraRequestProtocolErr](#)

**Associated Diameter Interface / Message Type:** Diameter Requests

**GUI Configurable:** No (Result Code 3007)

**Recovery:**

1. Check *Diameter Message Validation* in the Error Resolution appendix of the *Policy DRA 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 > Measurement > Report** for, but not limited to, "Diameter Exception," "DSR Application Exception," and "Policy DRA Diameter Exception" Measurement Groups.

### Error Code 531

**Associated Error Category:** Command Code and App ID no match

**Description:** Command Code doesn't match the App ID or doesn't exist

**Associated P-DRA Alarm/Event:** Event 22700 - Protocol errors in Diameter Requests (refer to the *DSR Alarms and KPIs Reference* for details about this event)

**Associated Measurement:** [RxPdraRequestProtocolErr](#)

**Associated Diameter Interface / Message Type:** Diameter Requests

**GUI Configurable:** No (Result Code 5019)

**Recovery:**

1. Check *Diameter Message Validation* in the Error Resolution appendix of the *Policy DRA 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 > Measurement > 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>Abstract Service Primitive</p> <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,</p>



## A

and may be configured to process signaling traffic within more than one Application Server.

Application Service Part

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.

ATH

Application Trouble Handler  
Answer Topology Hiding

ATR

Application-Terminated Routing  
Routing rule that operates on outgoing application-terminated (AT) messages.  
Answer Topology Restoral

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.

## C

CCR	<p>Continuity Check Request</p> <p>Credit Control Request</p> <p>A Diameter message to be sent to a prepaid rating engine to request credit authorization for an SMS.</p>
CdPA	<p>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 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.</p>
CEA	<p>Capability-Exchange-Answer</p> <p>The Diameter response that the prepaid rating engine sends to the Mobile Originated application during capability exchanges.</p>
CER	<p>Capabilities-Exchange-Request</p> <p>A Diameter message that the Mobile Originated application sends to a prepaid rating engine to perform a capability exchange. The CER (indicated by the Command-Code set to 257 and the Command Flags' 'R' bit set) is sent to exchange local capabilities. The prepaid rating engine responds with a Capability-Exchange-Answer (CEA) message.</p>
ComAgent	<p>Communication Agent</p> <p>A common infrastructure component delivered as part of a</p>

## C

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 Tekelec 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.

CPA

Capability Point Code ANSI

Charging Proxy Application

The Charging Proxy Application (CPA) feature defines a DSR-based Charging Proxy Function (CPF) between the CTFs and the CDFs. The types of CTF include GGSN, PGW, SGW, HSGW, and CSCF/TAS.

## D

DA-MP

Diameter Agent Message Processor

A DSR MP (Server Role = MP, Server Group Function = Diameter Signaling Router). A local application such as CPA can optionally be activated on the DA-MP. A computer or blade that is hosting a Diameter Signaling Router Application.

## D

DAVA	Destination Available
DCL	<p>Diameter Connection Layer</p> <p>The software layer of the stack which implements Diameter transport connections.</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> <p>DSR application that translates Diameter messages into MAP messages.</p>
DP	Data Processor

## D

The repository of subscriber data on the individual node elements. The DP hosts the full address resolution database.

DPA

Disconnect-Peer-Answer

A message used by a Diameter node to answer the Disconnect-Peer-Request (DPR).

DPR

Disconnect-Peer-Request

A message used by a Diameter node to inform its peer of its intent to disconnect the transport layer. Upon receipt of a DPR, the Disconnect-Peer-Answer (DPA) is returned.

DRL

Diameter Routing Layer - The software layer of the stack that implements Diameter routing.

DRST

Destination Restricted

DSR

Data Set Ready

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.

Delete Subscriber Data Request

DTLS

Datagram Transport Layer Security

DUNA

Destination Unavailable

**D**

DUPU Destination User Part Unavailable  
An M3UA management message.

DWA Device-Watchdog-Answer  
A Diameter message used with the Device-Watchdog-Request (DWR) message to proactively detect connection failures. If no traffic is detected on a connection between the Mobile Originated application and the prepaid rating engine within the configured timeout period, a DWR message is sent to the prepaid rating engine. If the prepaid rating engine fails to respond with a DWA within the required time, the connection is closed with the prepaid rating engine and initiates failover procedures. All new and pending requests are then sent to the secondary server.

DWR Device-Watchdog-Request  
A Diameter message used with the Device-Watchdog-Answer (DWA) message to proactively detect connection failures. If no traffic is detected on a connection between the Mobile Originated application and the Diameter server within the configured timeout period, a DWR message is sent to the Diameter Server. If the Diameter server fails to respond within the required time, the connection is closed with the Diameter server and initiates failover procedures. All new and pending requests are then sent to the secondary Diameter server.

**E**

EMR Egress Message Rate

**E**

EPT	<p>Egress Pending Transaction</p> <p>The number of transactions pending for answers on a connection or peer (or a group of connections/peers).</p>
ETG	<p>Egress Throttle Group (s)</p>
ETG-PCL	<p>Egress Throttle Group Pending Transaction Limiting Congestion Level. ETG-PCL of 0 denotes that state of Rate Limiting function is Normal. ETG-PCL of <math>X</math> (<math>X &gt; 0</math>) denotes that Requests of Priority less than <math>X</math> will not be allowed to send to Peers or Diameter Connections in that ETG.</p>
ETG-RCL	<p>Egress Throttle Group - Rate Limiting Congestion Level. ETG-RCL of 0 denotes that state of Rate Limiting function is Normal. ETG-RCL of <math>X</math> (<math>X &gt; 0</math>) denotes that Requests of Priority less than <math>X</math> will not be allowed to send to Peers or Diameter Connections in that ETG.</p>
ETL	<p>Egress Throttle List</p>

**F**

FABR	<p>Full Address Based Resolution</p> <p>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.</p>
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**G**

## G

GGA	<p>Get-Gateway-Answer</p> <p>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 it is assigned.</p>
GGR	<p>Get-Gateway-Request</p> <p>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.</p>
GLA	<p>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.</p>
GT	<p>Global Title Routing Indicator</p>
GTI	<p>Global Title Indicator</p>
Gx	<p>The Diameter credit control based interface between a PCRF and a</p>



**G**

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**

IDIH

Integrated Diameter Intelligence Hub

IMSI

International Mobile Subscriber Identity

International Mobile Station Identity

A unique internal network ID identifying a mobile subscriber.

IMR

Ingress Message Rate

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.

**I**

ITU	<p>International Telecommunications Union</p> <p>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.</p>
IWF	InterWorking Function

**M**

MD-IWF	MAP-Diameter Interworking SS7 Application, which translates MAP messages into Diameter messages
Message Processor	See MP
MME	Mobility Management Entity
MP	<p>Message Processor - The role of the Message Processor is to provide the application messaging protocol interfaces and processing. However, these servers also have OAM&amp;P components. All Message Processors replicate from their Signaling OAM's database and generate faults to a Fault Management System.</p>

**N**

NE	Network Element
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**N**

An independent and identifiable piece of equipment closely associated with at least one processor, and within a single location.

In a 2-Tiered DSR OAM system, this includes the NOAM and all MPs underneath it. In a 3-Tiered DSR OAM system, this includes the NOAM, the SOAM, and all MPs associated with the SOAM.

Network Entity

NOAM

Network Operations,  
Administration, and Maintenance

**P**

PCRF

Policy and Charging Rules  
Function

The ability to dynamically control access, services, network capacity, and charges in a network.

Maintains rules regarding a subscriber's use of network resources. Responds to CCR and AAR messages. Periodically sends RAR messages. All policy sessions for a given subscriber, originating anywhere in the network, must be processed by the same PCRF.

P-DRA

Policy DRA

PDU

Protocol Data Unit

Peer

A Diameter node to which a given Diameter node has a direct transport connection.

**P**

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 the user to route Diameter end-to-end transactions based on Application ID, Command Code, "Routing Entity" Type, and Routing Entity address ranges.

Relay Agent Diameter agent that forwards requests and responses to other Diameter nodes based on routing-related AVPs (such as Destination-Realm) and routing configuration. Because relays do not make policy decisions, they do not examine or alter non-routing AVPs. As a result, relays never originate messages, do not need to understand the semantics of messages or non-routing AVPs, and are capable of handling any Diameter application or message type.

RI Routing Indicator

RTH Request Topology Hiding

**R**

A Topology Hiding trigger point that identifies a location within Diameter routing where topology-related information in a Request message is hidden or obscured based upon a set of Topology Hiding rules.

RTR

Router

Routes all types of SMS traffic.

Request Topology Restoral

**S**

SBR

Session Binding Repository

A highly available, distributed database for storing Diameter session binding data.

Subsystem Backup Routing

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.

## S

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.

Session Binding Repository

See SBR.

SG

Secure Gateway

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 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

**S**

Site 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.

Spanning Tree Protocol

STR

Send\_to\_Resource AIN message  
Session Termination Request (Rx  
Diameter command)

**T**

TH

Topology Hiding

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.

TTR

Team Test Ready

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**

**U**

Untrusted Network

A Diameter network which has topology information hidden by the Topology Hiding features.

**X**

XUDT

Extended Unit Data  
Extended User Data