

DiameterCC Measurements

USER GUIDE



Contents

1	Introduction	1
2	Diameter Measurements	3
2.1	Egress Request Message related Measurements	3
2.2	Egress Answer Message related Measurements	11
2.3	Ingress Request Message related Measurements	17
2.4	Ingress Answer Message related Measurements	21
3	Diameter Measurement Object Classes	31
4	Measurement Loading for C-Diameter	35





1 Introduction

This document describes the measurements performed by Diameter CC.

The measurement data collected for the Diameter CC measurements are:

- Streamed (if related Diameter CC service is enabled) towards a target server for runtime representation (for instance by using the `dashboard` utility) or dumped for post processing (for instance by using the `listener` and `drawer` tool combination). See for more information the help of related utilities delivered through the C-Diameter Toolkit which deployment is described in the [C-Diameter Integration Description](#) document.
- Reported towards the CoreMW Performance Management (CoreMW/PM) service of CBA which in order can dump 3GPP compliant XML reports and provide real-time measurement inspection capabilities through NBI. This service is only valid in case of C-Diameter. That is, when Diameter CC is used in combination with the `DiameterCmwAL`.

The naming and representation of Diameter CC measurements is 3GPP TS 32.401 compliant. The information in this document for each measurement is following the 3GPP standard defined terminologies.





2 Diameter Measurements

2.1 Egress Request Message related Measurements

The following measurements are defined for egress request messages:

Diameter.EgressReqMsg.TotalCount

Properties

Measurement Type:	Diameter.EgressReqMsg.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of egress request messages issued by the Diameter Stack. That is, all the egress request messages sent out by Diameter CC.



Diameter.EgressReqMsgPosted.TotalCount

Properties

Measurement Type:	Diameter.EgressReqMsgPosted.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages posted by Diameter Applications towards the Diameter Stack.

Diameter.EgressReqMsgConnectionMgmt.TotalCount

Properties

Measurement Type:	Diameter.EgressReqMsgConnectionMgmt.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number egress connection management related request messages. That is, messages handled by Diameter Stack without application involvement (for instance DWR, DPR).



Diameter.EgressReqMsgResent.TotalCount

Properties

Measurement Type:	Diameter.EgressReqMsgResent.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages resent.

```
Diameter.EgressReqMsgResent.TotalCount =  
    Diameter.EgressReqMsgResent.ProtocolError +  
    Diameter.EgressReqMsgResent.TransientFailure +  
    Diameter.EgressReqMsgResent.TimeOut
```

There is no relation between the Diameter.EgressReqMsgResent.TotalCount and Diameter.EgressReqMsg.TotalCount measurements.



Diameter.EgressReqMsgResent.ProtocolError

Properties

Measurement Type:	Diameter.EgressReqMsgResent.ProtocolError
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages resent due to Diameter [Protocol Errors](#) indicated by Diameter Peer Node. That is, the egress request message is resent through another available connection (selected from potential ones) because an answer message with either of the DIAMETER_TOO_BUSY, DIAMETER_UNABLE_TO_DELIVER, DIAMETER_LOOP_DETECTED protocol error codes was received for the earlier send attempt of the same request message through the previous connection.



Diameter.EgressReqMsgResent.TransientFailure

Properties

Measurement Type:	Diameter.EgressReqMsgResent.TransientFailure
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages resent due to [Transient Failures](#) indicated by Diameter Peer Node. That is, the egress request message is resent through another available connection (selected from potential ones) because an answer message with the DIAMETER_OUT_OF_SPACE transient failure code was received for the earlier send attempt of the same request message through the previous connection.



Diameter.EgressReqMsgResent.ConnectionLost

Properties

Measurement Type:	Diameter.EgressReqMsgResent.ConnectionLost
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages resent due to peer connection loss. That is, the egress request message is resent through another available connection (selected from potential ones) because the used connection was lost prior related answer reception.

Diameter.EgressReqMsgResent.TimeOut

Properties

Measurement Type:	Diameter.EgressReqMsgResent.TimeOut
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages resent due to time-out. That is, the egress request message is resent through another available connection (selected from potential ones) because no answer message was received for the earlier sent attempt of the same request message through the previous connection in the configured time-out period.



Diameter.EgressReqMsgDiscarded.TotalCount

Properties

Measurement Type:	Diameter.EgressReqMsgDiscarded.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages dropped/discarded.

```
Diameter.EgressReqMsgDiscarded.TotalCount =  
    Diameter.EgressReqMsgDiscarded.ConnectionLost +  
    Diameter.EgressReqMsgDiscarded.Routing +  
    Diameter.EgressReqMsgDiscarded.TimeOut
```

Diameter.EgressReqMsgDiscarded.ConnectionLost

Properties

Measurement Type:	
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages dropped/discarded due to connection loss. That is, the egress request message is discarded because the used connection was lost prior related answer reception and there is no other connection that could be used for request message resend.



Diameter.EgressReqMsgDiscarded.Routing

Properties

Measurement Type:	Diameter.EgressReqMsgDiscarded.Routing
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages dropped/discarded due to routing. That is, there is no routing rule fired for the message to be sent. Therefore, it is discarded by stack.

Diameter.EgressReqMsgDiscarded.TimeOut

Properties

Measurement Type:	Diameter.EgressReqMsgDiscarded.TimeOut
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress request messages dropped/discarded due to time-out. That is, the egress request message is discarded because no answer message was received for the earlier send attempt of the same request message through the previous connection in the configured time-out period and there is no alternate connection that can be used to resend the request message.



2.2 Egress Answer Message related Measurements

The following measurements are defined for egress answer messages:

Diameter.EgressAnswMsg.TotalCount

Properties

Measurement Type:	Diameter.EgressAnswMsg.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of egress answer messages issued by the Diameter Stack. That is, all the egress answer messages sent out by the stack.

Diameter.EgressAnswMsgPosted.TotalCount

Properties

Measurement Type:	Diameter.EgressAnswMsgPosted.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of egress answer messages posted by AAA Services towards the Diameter Stack.



Diameter.EgressAnswMsg.Info

Properties

Measurement Type:	Diameter.EgressAnswMsg.Info
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of egress answer messages handled by Diameter Server with result code: Informational.

Diameter.EgressAnswMsg.Success

Properties

Measurement Type:	Diameter.EgressAnswMsg.Success
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of egress answer messages handled by Diameter Server with result code: Success.



Diameter.EgressAnswMsg.ProtocolError

Properties

Measurement Type:	Diameter.EgressAnswMsg.ProtocolError
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of egress answer messages handled by Diameter Server with result code: Protocol Error (error answer message with "E" bit set).

Diameter.EgressAnswMsg.TransientFailure

Properties

Measurement Type:	Diameter.EgressAnswMsg.TransientFailure
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of egress answer messages handled by Diameter Server with result code: Transient Failure.



Diameter.EgressAnswMsg.PermanentFailure

Properties

Measurement Type:	Diameter.EgressAnswMsg.PermanentFailure
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of egress answer messages handled by Diameter Server with result code: Permanent Failure.

Diameter.EgressAnswMsgConnectionMgmt.TotalCount

Properties

Measurement Type:	Diameter.EgressAnswMsgConnectionMgmt.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number egress connection management related answer messages. That is, messages handled by Diameter Stack without application involvement (for instance: DWA, DPA).



Diameter.EgressAnswMsgDiscarded.TotalCount

Properties

Measurement Type:	Diameter.EgressAnswMsgDiscarded.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server and Diameter User Library instances.

Description

Measures the number of egress answer messages dropped.

```
Diameter.EgressAnswMsgDiscarded.TotalCount =  
    Diameter.EgressAnswMsgDiscarded.ConnectionLost +  
    Diameter.EgressAnswMsgDiscarded.Congestion +  
    Diameter.EgressAnswMsgDiscarded.TimeOut
```

Diameter.EgressAnswMsgDiscarded.ConnectionLost

Properties

Measurement Type:	Diameter.EgressAnswMsgDiscarded.ConnectionLost
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server and Diameter User Library instances.

Description

Measures the number of egress answer messages dropped/discarded due to connection loss. That is, the egress answer message is discarded because the connectivity to related Diameter Peer or Diameter CC endpoint handler is lost.



Diameter.EgressAnswMsgDiscarded.Congestion

Properties

Measurement Type:	Diameter.EgressAnswMsgDiscarded.Congestion
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server and Diameter User Library instances.

Description

Measures the number of egress answer messages dropped/discarded due to congestion.

Diameter.EgressAnswMsgDiscarded.TimeOut

Properties

Measurement Type:	Diameter.EgressAnswMsgDiscarded.TimeOut
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server and Diameter User Library instances.

Description

Measures the number of egress answer messages dropped/discarded due to time-out. That is, the time the Diameter stack waits for answering a message on user application level expires (see also the `DiaService::requestPendingTimer` attribute in the DiameterCC Managed Object Model or the `OtpdiaService::requestTimeout` attribute in the Otpdia Managed Object Model).



2.3 Ingress Request Message related Measurements

The following measurements are defined for ingress request messages:

Diameter.IngressReqMsg.TotalCount

Properties

Measurement Type:	Diameter.IngressReqMsg.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress request messages captured by Diameter Stack. That is, all the ingress request messages received by the Diameter Stack.

Diameter.IngressReqMsgResent.TotalCount

Properties

Measurement Type:	Diameter.IngressReqMsgResent.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress request messages resent (message with T flag set).



Diameter.IngressReqMsgDelivered.TotalCount

Properties

Measurement Type:	Diameter.IngressReqMsgDelivered.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of ingress request messages passed/delivered to AAA Services. That is, all the ingress request messages that are finally passed/delivered by the Diameter Stack for processing towards the relevant Diameter User Application implemented AAA Services.

Diameter.IngressReqMsgConnectionMgmt.TotalCount

Properties

Measurement Type:	Diameter.IngressReqMsgConnectionMgmt.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number ingress connection management related request messages. That is, messages handled by Diameter Stack without application involvement (for instance: DWR, DPR).



Diameter.IngressReqMsgDiscarded.TotalCount

Properties

Measurement Type:	Diameter.IngressReqMsgDiscarded.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress request messages dropped.

```
Diameter.IngressReqMsgDiscarded.TotalCount =
  Diameter.IngressReqMsgDiscarded.ConnectionLost +
  Diameter.IngressReqMsgDiscarded.Congestion +
  Diameter.IngressReqMsgDiscarded.Malformation +
  Diameter.IngressReqMsgDiscarded.Routing
```

Diameter.IngressReqMsgDiscarded.ConnectionLost

Properties

Measurement Type:	Diameter.IngressReqMsgDiscarded.ConnectionLost
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress request messages dropped/discarded due to connection loss. That is, the ingress request message is discarded because the connectivity to related AAA Service instance the request message is to be forwarded is lost.



Diameter.IngressReqMsgDiscarded.Congestion

Properties

Measurement Type:	Diameter.IngressReqMsgDiscarded.Congestion
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress request messages dropped/discarded due to congestion.

Diameter.IngressReqMsgDiscarded.Malformation

Properties

Measurement Type:	Diameter.IngressReqMsgDiscarded.Malformation
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress request messages dropped/discarded due to message malformation. That is, the ingress request message is malformed to such a level that even an answer message cannot be created and sent towards origin host.



Diameter.IngressReqMsgDiscarded.Routing

Properties

Measurement Type:	Diameter.IngressReqMsgDiscarded.Routing
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress request messages dropped/discarded due to routing. That is, there is no routing rule fired for the received message (that is no service determined). Therefore, it is discarded by the diameter stack.

2.4

Ingress Answer Message related Measurements

The following measurements are defined for ingress answer messages:

Diameter.IngressAnswMsg.TotalCount

Properties

Measurement Type:	Diameter.IngressAnswMsg.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages captured by the Diameter Stack. That is, all the ingress answer messages received by the stack.



Diameter.IngressAnswMsg.Info

Properties

Measurement Type:	Diameter.IngressAnswMsg.Info
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages with result code: [Informational](#).

Diameter.IngressAnswMsg.Success

Properties

Measurement Type:	Diameter.IngressAnswMsg.Success
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages with result code: [Success](#).



Diameter.IngressAnswMsg.ProtocolError

Properties

Measurement Type:	Diameter.IngressAnswMsg.ProtocolError
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages with result code: [Protocol Error](#) (error answer message with "E" bit set).

Diameter.IngressAnswMsg.TransientFailure

Properties

Measurement Type:	Diameter.IngressAnswMsg.TransientFailure
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages with result code: [Transient Failure](#).



Diameter.IngressAnswMsg.PermanentFailure

Properties

Measurement Type:	Diameter.IngressAnswMsg.PermanentFailure
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages with result code: [Permanent Failure](#).



Diameter.IngressAnswMsg.Malformation

Properties

Measurement Type:	Diameter.IngressAnswMsg.Malformation
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of malformed ingress answer messages. A message is considered malformed if:

- The Result-Code AVP is not present in received message while mandatory in message definition.
- The Result-Code AVP is present in received message but the message grammar validation fails.
- The Result-Code AVP is not present in received message while optional in message definition and the message grammar validation fails.



Diameter.IngressAnswMsgDelivered.TotalCount

Properties

Measurement Type:	Diameter.IngressAnswMsgDelivered.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter User Library instances.

Description

Measures the number of ingress answer messages passed/delivered to AAA Services. That is, all the ingress answer messages that are finally passed/delivered by the Diameter Stack for processing to the relevant AAA Service.

Diameter.IngressAnswMsgConnectionMgmt.TotalCount

Properties

Measurement Type:	Diameter.IngressAnswMsgConnectionMgmt.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number ingress connection management related answer messages. That is, messages handled by Diameter Stack without application involvement (for instance: DWA, DPA).



Diameter.IngressAnswMsgDiscarded.TotalCount

Properties

Measurement Type:	Diameter.IngressAnswMsgDiscarded.TotalCount
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages dropped.

```
Diameter.IngressAnswMsgDiscarded.TotalCount =  
    Diameter.IngressAnswMsgDiscarded.ConnectionLost +  
    Diameter.IngressAnswMsgDiscarded.Congestion +  
    Diameter.IngressAnswMsgDiscarded.Malformation
```



Diameter.IngressAnswMsgDiscarded.ConnectionLost

Properties

Measurement Type:	Diameter.IngressAnswMsgDiscarded.ConnectionLost
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages dropped/discarded due to connection loss. That is, the ingress answer message is discarded because:

- The connectivity to related AAA Service instance the answer message is to be forwarded is lost.
- The message header contains a Hop-by-Hop Identifier not known/handled by stack for related Application-Id. This can be of two reasons:
 - The Hop-by-Hop Identifier is malformed.
 - The related pending request message was discarded on Diameter Stack level.



Diameter.IngressAnswMsgDiscarded.Congestion

Properties

Measurement Type:	Diameter.IngressAnswMsgDiscarded.Congestion
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages dropped/discarded due to congestion.



Diameter.IngressAnswMsgDiscarded.Malformation

Properties

Measurement Type:	Diameter.IngressAnswMsgDiscarded.Malformation
Collection Method:	Cumulative Counter
Measurement Result:	A single integer value (64 bit).
Measurement Unit:	Count
Measurement Object Class:	DiaNode, DiaPeer, DiaPeerConn
Measurement Source:	Diameter Server instances.

Description

Measures the number of ingress answer messages dropped/discarded due to message malformation. That is:

- The message header contains invalid bits.
- The message length is not correct.
- The message header contains invalid/unknown Application-Id.
- The message header contains a known Application-Id but no related AAA Service is reachable to deliver message towards it.
- The answer message cannot be validated against related grammar.



3 Diameter Measurement Object Classes

The following MOCs (and related MOIDs) are defined for the Diameter CC measurements:

DiaNode

Properties

MOClass: DiaNode

MOID Template: DiaNode=<Diameter-Node-Name>

Description

MOID used to identify a diameter node represented by a **DiaHost** MOC instance. Where:

— <Diameter-Node-Name>

The name of the Own Diameter Node. It takes as value the `originHost` of the relevant **DiaHost** MOC instance (see also DiameterCC Managed Object Model).

Example

DiaNode=operator1.sapc1



DiaPeer

Properties

MOClass: DiaPeer

MOID Template: DiaNode=<Diameter-Node-Name>,DiaPeer=<Diameter-Peer-Name>

Description

MOID used to identify the Diameter Peer Node of the Own Diameter Node. Where:

— <Diameter-Node-Name>

The name of the Own Diameter Node (see **DiaNode** MOClass description above).

— <Diameter-Peer-Name>

The name of the Diameter Peer Node. That is, the Origin-Host AVP of the Diameter Peer Node received in CER/CEA message during connection setup.

Example

```
DiaNode=operator1.sapc1,DiaPeer=operator1.dsc1
```



DiaPeerConn

Properties

MOClass: DiaPeerConn

MOID Template: DiaNode=<Diameter-Node-Name>,DiaPeer=<Diameter-Peer-Name>

Description

MOID used to identify the peer connection of a diameter node. Where:

— <Diameter-Node-Name>

The name of the Own Diameter Node (see **DiaNode** MOClass description above).

— <Diameter-Peer-Name>

The name of the Diameter Peer Node (see **DiaPeer** MOClass description above).

— <Peer-Connection>

The Diameter Peer Connection identifier. That is, the Host-IP-Address AVP of the peer received in the CER/CEA message during connection setup. In case of multiple addresses only the first address is used for MOID construction.

Example

DiaNode=operator1.sapc1,DiaPeer=operator1.dsc1,DiaPeerConn=10.0.2.123





4 Measurement Loading for C-Diameter

All the above defined measurements are automatically loaded by C-Diameter into the related NBI model fragment of CoreMW/PM.

A default **PmJob** object instance, called **CDiameterJob** (DN = "pmJobId=CDiameterJob,CmwPmpmId=1"), holding all the Diameter measurement types is defined and loaded as well during C-Diameter deployment. However, this PmJob is disabled by default. C-Diameter user Applications might decide to enable this PmJob or define their own ones using the NBI.